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THE

376

GLASGOW

# MEDICAL JOURNAL

(PUBLISHED QUARTERLY),

EDITED BY A COMMITTEE

OF THE

GLASGOW & WEST OF SCOTLAND MEDICAL ASSOCIATION.

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VOL. VIII., NEW SERIES.

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GLASGOW:

DUNN & WRIGHT, 47 WEST NILE STREET.

1876

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THE  
GLASGOW MEDICAL JOURNAL.

January, 1876.

Original Articles.

I.—LECTURES ON CLINICAL MEDICINE.

By DR M'CALL ANDERSON, *Professor of Clinical Medicine in the University of Glasgow.*

II.—CASE OF MEDIASTINAL TUMOUR.\*

GENTLEMEN,—The case which is to form the subject of a few observations this morning is a comparatively rare one, but I have no hesitation in directing your attention to it, seeing that in its surroundings it is calculated to afford instruction which may be of use in every-day practice. The patient,† “Francis M'F., æt. 44, iron-moulder, married, was admitted into the Western Infirmary (Ward II., bed 6), on the recommendation of Professor Simpson, on the 11th Nov., 1874, suffering from cough and expectoration of 12 months', spitting of blood of five months', and swelling of the neck with dyspnœa on exertion, of three months' duration. His father died at the age of 48 of 'inflammation of the lungs,' and his mother at 70. He has two brothers and one sister alive and well. From the age of 14 to 24 he worked as an iron-moulder; after that he was in the army for 12 years, and was stationed

\* Delivered in the Western Infirmary of Glasgow.

† Case reported by Dr Charles J. Plumer.

at different times in the West Indies, Gibraltar, and Corfu; during the whole of that time he enjoyed excellent health. At the age of 36 he left the army and resumed his former occupation. His work was very laborious, and entailed much exposure to heat and cold, but his health did not suffer in consequence, as far as he knows. About 12 months ago a slight dry cough set in, accompanied, in a few weeks, by expectoration, which gradually increased in amount, and five months ago, having caught a severe cold, the cough became violent and the sputa streaked with blood, and since that time he has frequently brought up small quantities of blood. About three months prior to admission he began to experience giddiness, oppression, and a sense of suffocation on making violent muscular exertion, especially on stooping, lifting heavy weights, &c., but these symptoms passed off on assuming the erect posture, or after resting a while. About the same time slight puffiness of the neck was observed, and three weeks ago all his symptoms being aggravated, he was obliged to give up work. He has never complained of headache, but on stooping or coughing, his sight becomes dim; everything appearing as if in a mist. For a year past he has occasionally felt a dull aching pain, sometimes of a burning character, shooting through from the right breast to the scapula, which is aggravated by hard work; and for the last six weeks, on carrying his hand backwards towards his shoulder, a pain seizes him in the front of the upper arm below the shoulder, and prevents him from completing the act. His general health seems to have been above the average, although he has taken stimulants pretty freely."

Our patient is a fine, healthy-looking man, and yet he is labouring under a very serious disease. Let us, therefore, analyse his ailments.

In the first place, there are well-marked symptoms of pulmonary disorder. He has cough, expectoration, which is frothy and muco-purulent, and sometimes bloody, and when he coughs, stoops, or undergoes exertion of any kind, he complains of shortness of breath. On placing



the patient upon his back, and exposing the front of the chest, it is observed that the movements of respiration are not so free at the upper part of the right side as they are at the left. In this situation there is marked dulness upon percussion, diminishing, however, in intensity from the apex downwards. The vesicular murmur is absent, and is replaced by tubular breathing at the apex of the lung, and the vocal resonance is increased. The same physical signs are present, though in a less degree, at the upper part of the right lung posteriorly. These physical signs lead to the conclusion that the top of the lung is in a state of consolidation. Now, consolidation at the apex of the lung in the majority of instances leads one to suspect phthisis, but our patient is neither weakly nor scrofulous, nor does he present the general symptoms of phthisis. There are, moreover, certain peculiarities in his case, pointing to a very different conclusion. In the first place, the dulness is not limited to the area of the lung; it extends across the sternum, and a little to the left of that bone, whereas in simple consolidation of the lung this never occurs.

When fluid is effused into the cavity of the pleura, that membrane is put upon the stretch, and as a consequence, the dulness, which is one of the most marked of its physical signs, often extends beyond the middle line; but the theory of pleuritic effusion is untenable in this case, because then we should probably have no bloody expectoration, and diminished, instead of increased, vocal resonance, and because an effusion of fluid, limited to the upper part of the chest, is rarely, if ever, observed.

In the second place, on listening to the respiratory murmur at the bases of the lungs, it is found to be normal at the left base, but very feeble at the right, and as there is no dulness in the latter situation, we are led to suspect that there is some interference with the free entrance of air into the right lung.

Thirdly, there is marked dilatation of the superficial veins of the arms, head, neck, and top of the chest, especially upon the right side, which leads to the conclusion that there

is some impediment within the chest to the free return of venous blood to the right side of the heart, and, doubtless, the giddiness and dimness of vision on stooping, &c., is due to the increased obstruction thereby produced. In addition to the varicosity of the veins, there is distinct swelling of the neck, which pits upon pressure, thus proving the presence of œdema, which is evidently consequent upon the venous engorgement, just as we often meet with œdema of the lower extremities, resulting from a varicose condition of the veins of these parts.

Lastly, on applying the fingers over the radial arteries, it is found that the pulse at the right wrist is much more feeble than that of the left, thus showing that there is some impediment to the passage of arterial blood to the right arm.

Putting all these circumstances together, we are led to the conclusion that, in all probability, there is a tumour in the anterior mediastinum which has compressed and irritated the upper portion of the right lung, and induced the consolidation already indicated. This tumour must press upon the right bronchus, thus accounting for the feeble breathing on that side; upon the subclavian artery, thus accounting for the feeble pulse at the right wrist; and upon the vena cava descendens or innominate veins, thus leading to the dilatation of the superficial veins and to the œdema.

Dr Anderson then referred to a similar case which came under his notice in the Royal Infirmary, but which need not be reported here, as it has been already recorded in the *Glasgow Medical Journal* for February, 1872. He then read the following report of a case, which occurred\* in the practice of the late Dr Graves:—

“James Byrne was admitted into the hospital on the 23rd of October, 1834, and had been in the hospital before for a considerable time. He states that, 18 months previously to his last admission, he was exposed to wet and cold, which produced a feverish attack, with symptoms of local inflammation

\* Clinical Lectures on the Practice of Medicine, by R. J. Graves, M.D. Ed. 11., Vol. 2, Page 184. Fannin & Co., Dublin.

in the lung, manifested by cough and difficulty of breathing. These were soon afterwards followed by dropsical swelling, and he applied at this hospital for relief. After remaining under treatment for about two months he began to improve, and left the hospital, as he states, quite relieved. He enjoyed tolerably good health, and continued to work at his trade, as a bricklayer, until about five weeks before his last admission, when he was again attacked with cough and difficulty of breathing, accompanied by œdema of the left side, of the chest, and left arm. On examining him after his admission, the following phenomena were observed:—The left side of the face and neck was slightly œdematous; the left external jugular vein, with its immediate branches, engorged and very prominent; the left arm and left side of the chest œdematous, and pitting on pressure; no affection of the bronchial mucous membrane or parenchyma of the lungs, sufficient to account for the cough, could be detected by auscultation. Considerable dulness over the situation of the heart, and extending upwards over the sternal region on the left side; the right sternal region sounded clear and natural. The heart had not been removed from its normal situation; its pulsations could be felt over the ordinary extent and no more, and they communicated a natural impulse to the finger. On applying the stethoscope over the heart, its sounds were found to be regular and natural, but on placing it higher up, over that part of the sternal region which was dull on percussion, a loud *bruit de râpe* was heard."

Dr Graves was inclined to think that the symptoms here present might be attributed to the presence of a solid tumour developed in the chest, the nature of which he could only guess at, and that it was situated in the anterior mediastinum, close to the region of the aorta.

Dr Clarke (*Lancet*, 1872, II. 10) records the following:—A mason, æt. 30, had been perfectly well up to six weeks before his admission into hospital; at that time, after lifting a heavy stone, he noticed a swelling in his neck, and complained of dull, aching pain down the right arm, dyspnœa,

dysphagia, and partial aphonia. The chest and arms, especially the right, were very œdematous, and the superficial veins were much enlarged; there was some flattening below the left clavicle; deficient movement and dulness of whole of left side, back and front; and on right side, below clavicle to fifth rib. The patient died of exhaustion a fortnight later. At the autopsy "a large solid mass of a carcinomatous nature" extended over the whole of the upper part of the thorax, closely connected with the left lung; and adherent to the right pleura; the left lung was contracted and adherent to the growth. The mediastinal glands were much enlarged; several masses of cancer were present in the liver and pancreas.

A short time ago\* I saw a somewhat similar case to that of our patient in consultation with Dr Wm. Pearson. This patient, a female, æt. 49, began to complain of pain to the right of the middle of the sternum, which, about nine months prior to my visit, extended up to the right shoulder. This was followed by a hard irritative cough, which was soon accompanied by slight frothy, and occasionally tough mucous expectoration. To these symptoms were added distension of the superficial veins of the right side of the neck and face and right arm, and œdema, which were aggravated by exertion. At the time of my seeing her, the cough and expectoration and pain of chest continued, and she had dyspnoea to such an extent that she could not lie down with comfort. The breathing over the whole chest was harsh, but air entered both lungs with equal freedom. There was distinct prominence, associated with dulness on percussion, of the upper part of the sternum, and at the right supra-scapular region the percussion was less clear than at the left. The voice was hoarse, but the pulses were equal on the two sides, and the pupils were unaffected.

Riegel† has collected thirty-six cases of mediastinal

\* Since this lecture was delivered—viz., June 25, 1875.

† "Zur pathologie und diagnose der Mediastinal tumoren." Virchow's Arch. xlix. 193. Extracted from the "Biennial Retrospect of Medicine and Surgery" for 1869-70. p. 134.

tumours recorded by different authors. He finds carcinoma and sarcoma most frequent. The growth of the tumours was variable, very frequently sudden and rapid; most commonly they invaded neighbouring organs, seldom only displaced them. They were more frequent in males than females, in the proportion of 2·4: 1. The majority occurred between the ages of twenty and thirty. Special symptoms were—absence of pyrexia, more or less bulging of the sternum, asymmetry of the two sides of the thorax, displacement of the heart, &c., cyanosis and œdema of the face and upper extremities from compressed vessels, and difference of pulse on the two sides; sometimes enlarged thyroid, with more or less exophthalmos; symptoms caused by pressure on the trachea or œsophagus; in the majority of cases enlargement of the neighbouring glands. To these were added pains of various degrees in the affected region, dyspnœa increased to true orthopnœa, and a cough, at first dry, later with purulent and sometimes blood-streaked expectoration.

The foregoing cases and statistics point to the conclusion that our patient is suffering from a mediastinal tumour; there is another disease, however, which it might be, and that is *aneurism*. But an aneurism, which has approached the surface, as this tumour has, would yield pulsation, although that sign may be absent if it is small and deep-seated. On the other hand, you may have pulsation when there is no aneurism, for a tumour lying upon the aorta, or one of the great vessels, may have the pulsation of that vessel communicated to it. If, however, it is the seat of expansion, as well as pulsation, it may be concluded that there is an aneurism. Again, if on applying the hand over the part, that peculiar vibration to which the term "purring tremor" has been given, is experienced, and which was absent in this case, aneurism is pretty certainly present, but it is often absent in that complaint, and as a negative symptom, is of little value in diagnosis. In our patient no murmur can be heard, as is generally the case in mediastinal tumour, but it must not be forgotten that

aneurisms are often met with, and I have shown you illustrations of the fact, in which no murmur is audible, and on the other hand, the tumour may be non-aneurismal and yet there may be a murmur, if it lies upon and compresses and diminishes the calibre of a great vessel. Lastly, dilatation of the superficial veins and œdema were noted, symptoms which are usual in mediastinal tumour, but comparatively uncommon in aneurism, because an aneurism is more soft and yielding, and is generally more or less moveable, so as not to exercise serious and constant pressure upon the veins within the chest. The difference in the pulses at the wrists, present in our case, is more frequently met with in aneurism than in tumour, although it is sometimes present in the latter; so that, on the whole, it must be admitted that the balance of evidence is decidedly against the aneurismal view.

Now, it is not enough to make the diagnosis of mediastinal tumour; we must endeavour, further, to ascertain if there is anything in the surroundings of the case to afford information as to the nature of the tumour. Accordingly we made a careful examination of the patient, and found a swelling over the right tibia, a node, as it is termed, which was painful, especially at night, as we so often find in cases of syphilis, and therefore there was a suspicion that the intra-thoracic disease might be of syphilitic origin; but there were no other signs of syphilis. There was no history of that disease having been contracted; and, moreover, full doses of iodide of potassium, while it relieved the pain, had no further influence over the node, nor were the chest symptoms altered by it. Indeed, even while the iodide was being used the swelling of the tibia became firmer and larger, which led us to suspect that it was malignant.

At our Ward meeting I further directed your attention to a little swelling over the front of the sternum, smaller than a hen's egg, which is of a pink hue, and sends out little processes or roots in all directions. This swelling is due to excessive development of the white fibrous tissue of the skin; it is an illustration of that rare disease to which

the name of keloid has been given, and is in my experience unique, in so far as it seems to have been congenital, whereas such tumours almost invariably make their appearance in adult life. There are two forms of keloid—the true, and the false or spurious. The true differs from the false in several respects. The former appears spontaneously, the latter as the result of some lesion of the skin, such as that resulting from a burn, so that it would be quite appropriate to call the true, *idiopathic*, and the spurious, *traumatic* keloid. Again, the true is generally of small size, while the area of the false is variable, depending upon the extent of the preceding lesion; and finally, the true has a special tendency to occur upon the front of the chest, although not limited to that part, while the false may appear in any situation, because any part of the skin may suffer a solution of continuity. Our patient then is affected with true keloid; but what, you may naturally ask, has that to do with the question at issue. Simply this, that there seems to be some connection between the true keloid and cancerous affections—indeed, Alibert applied to it the term *cancroid*. Certain it is, at all events, that extirpation of the true keloid is about as certain to be followed by a return of the disease as in the case of true cancer.

More valuable support to the cancerous theory is to be found in the fact that our patient has hemoptysis, a symptom which, though met with in connection with other kinds of tumour, is much more frequently associated with cancer. And lastly, cancerous tumours are more frequently met with within the chest than any other kind, as the above-mentioned statistics of Riegel show.

I need not dwell upon the probable result in this case, for if our view as to its nature be correct, the tumour will in all probability go on increasing, deteriorating the general health, invading and further interfering with the functions of neighbouring organs and tissues, and will lead at no very remote period to the death of the patient. The treatment must be of the simplest kind; the diet must be simple and nourishing; the cough and irritation may be relieved

by a dose of etherodine at night, if the dyspnoea increases we may give temporary relief by the local abstraction of blood. It need hardly be added that absolute rest is indispensable.

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II.—NOTES OF THREE CASES OF CONGENITAL OBSTRUCTION  
OF GLAND DUCTS.

By ROBERT BELL, M.D., F.F.P.S.G.

TRUSTING that an account of three cases of congenital malformation in as many different ducts may not prove uninteresting, I have much pleasure in laying the details before the profession.

*Case I. Hydronephrosis. Case II. Obstruction of the Common Biliary Duct. Case III. Opening of the Parotid Duct on the outside of the Check.*

CASE I.—Mrs P. was delivered after a natural, and, for a primipara, an easy labour, of an apparently healthy male child. On examining the penis, however, it was observed that phymosis was present, and this at first was supposed to be the cause of the little patient being unable to micturate. On passing a small gum-elastic catheter, the bladder was found to be empty, and with the exception of a very small quantity of urine, which was voided a few hours after birth, none ever escaped by the urethra. The child was evidently in great pain, and was excessively tender over the lower part of the abdomen. As the nurse expressed it, “the cry was never out of its mouth,” and it slept hardly any. The pain also prevented it taking much nourishment. In a day or two a swelling of a circumscribed character was discovered on each side of the abdomen. This was dull on percussion, and gave evidence of being fluid contained within a sac. This sac was diagnosed to be a distended ureter and pelvis of the kidney containing urine. After several days of great agony, the swellings at the same



time gradually increasing, the poor little patient died, evidently from sheer exhaustion. The *post-mortem* examination confirmed the diagnosis, the following being the condition of the urinary organs:—The bladder presented the appearance of a small tennis ball, so rigid was its structure. On cutting into the organ its coats were observed to be very much thickened, and very dense from inflammatory infiltration; the inner surface was studded over with spots of ecchymosis, and the openings of the ureters were almost completely closed in consequence of the hypertrophied condition of the walls of the viscus. It was with considerable difficulty that I succeeded in passing a bristle through the apertures. I need hardly add that the bladder contained no urine. On the other hand the ureters were both distended to such an extent that they resembled a portion of intestine, and they were both filled with urine. The pelves of the kidneys were likewise very much distended with urine, and increased to at least five times their normal size. The urine indicated no disease of the kidneys, nor did the organs themselves present any diseased appearance.

The treatment of this case was a difficult matter, because the cause of the stoppage of urine was not ascertained till after death. It was never for a moment supposed that the closure was due to inflammatory thickening of the coats of the bladder, or attempts might have been made to draw off the urine by the aspirator, and we might have trusted to soothing injections into the viscus to reduce the inflammation and restore the potency of the ureters. This, at all events, would be the plan that I should be inclined to pursue were another case to present itself to me.

CASE II.—Mrs T. was, after a natural labour, delivered of her third child—a girl. All went on well for a week or so, the child taking the breast readily and appearing to thrive, when jaundice gradually set in, accompanied by purpura. The urine at the same time was largely charged with bile, while the stools contained no bile at all. On enquiring, the nurse said she could not remember of the child having had a coloured motion at all, not even when

one would expect the meconium to be coming away. I however, am inclined to think that the meconium presented no unusual appearance, or it would have been taken notice of at the time. All efforts to procure a healthy evacuation of bile proved unavailing, and the kidneys continued to excrete this fluid in large quantities, showing that the common bile duct was in such a condition as to prevent any outflow of the hepatic secretion in the normal direction. The child lived till it was four weeks old, and latterly the purpura proceeded to such an extent that the scalp gave way in several places, and large quantities of blood and bloody serum were discharged. The child gradually sank from exhaustion. Unfortunately a *post-mortem* examination could not be obtained.

CASE III.—This was a case of salivary fistula in a child nine months old. There was no opening of Stenson's duct into the mouth, all the saliva flowing over the cheek by the congenital and abnormal opening. I passed a double silk thread through the cheek and brought it out at the mouth, and intend keeping it there for some days, to establish a permanent channel in connection with the duct. It is nine days since this was done, and during this time no saliva has flowed on to the cheek. It will next be my object to close the opening on the cheek.

This case is not reported as one of very great interest, and is only given to complete the series, as all three are cases of congenital malformation of ducts leading from glandular organs.

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## III.—TWO CASES OF HYDATIDS OF THE LIVER, TREATED BY PUNCTURE.

By R. SCOTT ORR, M.D., F.R.C.S.E., *Physician to the Glasgow Royal Infirmary.*

*Read before the Glasgow Medico-Chirurgical Society, 5th November, 1875.*

CASE I. Robert S., a labourer, aged 20 years, was admitted into the Royal Infirmary, Ward XI., May 12th, 1873.

He stated that about seven or eight years ago he first observed a swelling or fulness in his right side below the ribs. It was unattended with pain or any uneasiness, and, except from its gradually increasing size, it caused him no inconvenience. At the time he first noticed this he was a boy of 12 or 13 years of age, and ran errands in a china shop for some 18 months. He kept a little dog, which he has still in his possession, and which is a perfectly healthy animal.\* His own food consisted of porridge and milk, beef ham, rice and milk, tea, bread and butter, and occasionally, but not very often, sausages.

“About three years ago he had an attack of jaundice, lasting three months, but unattended with hepatic pain. Three months ago he first complained of pain when working in a carpet factory, which only lasted some five days, and did not recur till three weeks before his admission. This pain brought him to the hospital and still continues, and is described to be of an acute stabbing character, darting across the hepatic region. It gradually subsided after a few days' residence in the Infirmary. His family consists of his father, mother, a brother and sister, all in good health. The swelling causes considerable enlargement of the right hypochondriac and epigastric regions, extending downwards to the umbilicus, and also into the left hypochondrium. It is tense and semi-fluctuant, evidently connected with the liver, and conveying to the fingers the feeling of deep fluctuation. There is no ascites. The patient's general health is very good. The supposition of hepatic

\* In Iceland the large number of dogs kept by the inhabitants is believed to have to do with the production of the disease.

abscess is excluded by the long duration of the malady and the absence of all constitutional symptoms."

On consultation with Dr Gairdner, who was at the time my colleague in the Infirmary, we came to the conclusion that although the whole train of symptoms was somewhat new to both of us, still we felt pretty confident that we had to do with a hydatid cyst. This we determined to puncture. The operation was performed by Dr Gairdner, and the following is his very complete report:—

"On the 23rd May last, tapped a large hydatid cyst of the liver in this patient, using the finest exploring canula in connection with the aspirator.

"The patient had been ill about seven years, that is to say, on carrying his recollection back, he thinks the swelling may have begun about that time.

"About four years ago he first applied to a doctor about it, and so far as he remembers there was up to that time no pain, and, indeed, absolutely no symptoms, except the swelling.

"About three years ago he thinks he was in Ward XI., and while there had an attack of jaundice entirely without pain, but with a certain amount of disordered appetite for food. Afterwards he remained without any striking symptoms, but with an increase in size of the tumour, and about three or four weeks before his present admission he experienced, for the first time, considerable pain in the right flank and shoulder, with a certain amount of dyspnœa, the increase in which last symptom was the chief complaint at the time of the operation. The pain had been subdued by local applications.

"There was no reasonable doubt as to the diagnosis, the prolonged history and the absence of pain and constitutional suffering up to a late period being considered to exclude the presumption of abscess.

"The tumour was evidently hepatic, of large size, and giving an impression over the most prominent part of very distinct fluctuation with elastic resistance and almost pointing, the canula was inserted at the most prominent point, and 46 fluid ounces were drawn off, of an almost perfectly colourless, and perfectly transparent liquid, sp. gr. 1007·8, in which no

albumen could be detected by the ordinary tests, and which seemed in fact like nothing so much as rain water, only just a little less than perfectly limpid. The chlorides were abundant.

“On careful microscopic examination, six or seven hooklets were discovered the first day, but on subsequent searches no more could be seen.

“After the operation the patient experienced a certain amount of pain during the afternoon and evening, and a dose of opium was administered at night, which, however, did not produce sound sleep. The next two days the pain continued slightly, but at no time was it so severe, the patient says, as the pain experienced before admission, and at no time did the clinical assistant who was in attendance observe any febrile movement. As a matter of precaution, however, the patient was strictly confined to bed for seven days, and for the first 48 hours was desired to maintain one position, and to make no pressure on the tumour. He had opiates about twice a day with a view of maintaining quietude, but at the end of seven days was allowed to go about.

“The fluid having reaccumulated, but without any obvious change in the symptoms, the exploring canula was again passed to-day (14th June) in precisely the same way as before, and 35 fluid ounces were drawn off, after which the canula appeared to become obstructed, and it was considered that enough had been drawn off. The change in the character of the fluid was most remarkable, instead of a liquid, limpid and colourless to the last drop removed, there came away a yellowish-brown and obviously more or less turbid fluid which, even in the small quantity first observed, appeared to be strongly charged with biliary colouring matter. When obtained in a sufficient quantity to fill a glass, the fluid was so dark as to intercept vision even at the depth of a few lines, and the colour can only be described as a pretty deep olive tint. The turbidity, however, being not at all suggestive of any distinctly purulent mixture, but rather such as is often observed in the urine in slight cases of irritation of the passages.

“The fluid on examination proved to be highly charged with bile and biliary colouring matter. Sp. gr. 1013.

“On microscopic examination, a considerable number of blood corpuscles were found, both red and white, keeping, however, much their usual proportion to one another, some unaltered, others in various, but not in very advanced stages of alteration. The red corpuscles varied in size, some of them were crenate, others had discharged their colouring matter, and a few presented tracings of beading at their circumference. The white corpuscles generally tended to enlargement, and some of them had very obvious fatty granules, one or two were so much altered and enlarged that their origin in white corpuscles might be a matter of doubt, the intermediate forms, however, rendering this most probable. Only two or three much disfigured and almost doubtful hooklets were discovered in the fluid.”

After remaining for some time in my ward, this patient's convalescence appeared to progress favourably, but as we were using no remedies internally, and as he wearied of the confinement in the hospital, and seemed rather pale and anæmic, I sent him to the Convalescent Home at Lenzie, and kept him there for a considerable time. Here his general health improved wonderfully. On his return to town he paid several visits to the ward, and each time a marked improvement was observed not only in his health, but also, I am glad to say, that the swelling in the hepatic region had very much diminished. Ultimately he discontinued his visits, and I have every reason to believe that a complete cure had been effected.

Case II. Mary M.D., aged 14, a school girl, was admitted into the Royal Infirmary on the 9th of April, 1872.

Her ailment was a swelling in the region of the liver, which had existed, or rather which had only been noticed, during the previous two months. It caused her so little inconvenience that her mother, and not she herself, was the first person to observe it, and then it was of large size. The swelling occupied the whole of the epigastric region, as well as both hypochondriac

regions, and hepatic dulness on percussion reached from about the umbilicus upwards as high as below the right mamma. It presented a peculiarly tense, bulging appearance beneath the cartilages of the ribs in the right hypochondrium. There was neither pain nor tenderness complained of, but only some slight degree of uneasiness when she stooped. Her general health was excellent, her appetite good, the menstrual function had not been established. She was kept under observation for several weeks, and then dismissed. I confess that I failed at that time to diagnose the case, and thought it probable, from her perfect health, that the liver might possibly be malformed, having once seen such a case, in which the swelling resembled very much what was seen in this instance.

The experience I gained from the first case I have related brought very vividly back to my mind all the features of this girl's case, and I often wondered after she left the hospital if it could possibly be another example of hydatid disease. To my great satisfaction, she again presented herself, and was re-admitted under my care on the 7th September, 1875. She was now about 18 years of age, and had been employed as a domestic servant, and her diet was in no respect likely to have induced the disease. On examination, the tumour of the liver was found to have very greatly increased in size. The hepatic dulness commenced about three inches below the right nipple, and extended beneath the umbilicus down into the right iliac region. The epigastrium and left hypochondrium were both filled by the tumour. It bulged most at right hypochondrium, beneath the costal cartilages, and here it was very tense and semi-elastic, conveying to the fingers very much the feeling of a child's large india-rubber ball. There was little or no pain complained of. The patient, however, was pretty deeply jaundiced, the urine was clear, of a dark sherry colour, and contained distinct traces of bile. The jaundice began two months previous to her admission, and had gradually deepened, otherwise her general health was pretty good. The catamenia had not yet appeared. She was treated with some podophyllum and blue pill. A few days after her admission (11th September) she complained of considerable pain in the tumour, so much so, that I

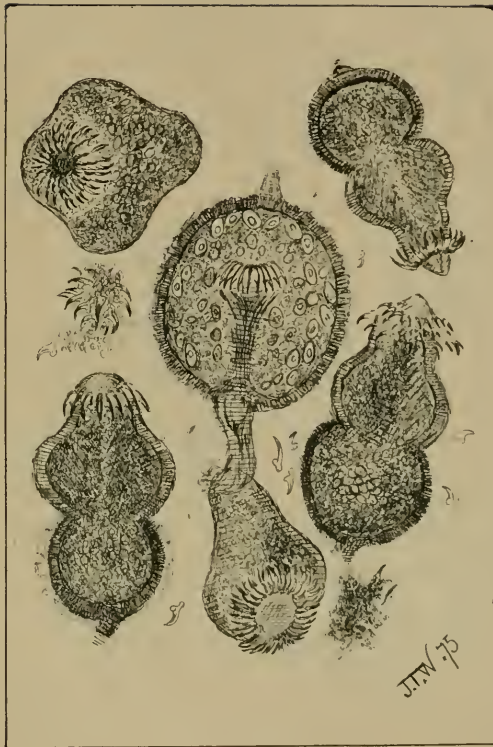
deemed it right to apply a blister, which removed it. After this, though she had occasional slight pain, her general health continued fair, the jaundice declined, and having quite made up my mind as to the nature of the disease, I asked my colleagues to see the patient, and having obtained their sanction, on the 1st of October I tapped the tumour with a fine trochar, and, by means of the aspirator, evacuated about 38 ounces of fluid. The first part of the fluid drawn off was clear and almost colourless, sp. gr. 1007. It abounded in chlorides, but contained no albumen, and was faintly alkaline to test paper. On standing, some whitish granules settled to the bottom, and these under the microscope presented the most beautiful specimens of hydatids. Many of these were in grape-like bundles, attached by their ante-cephalic ends to the cyst wall, others were free, and several detached hooklets were also visible. Immediately after the operation, adhesive plaster, and a compress and bandage, were applied, and an opiate administered, after which the patient soon fell asleep. I am indebted to Dr Whittaker for the etchings of the heads of the Echinococcus, taken under the microscope from the fluid drawn off in this case, and also of those from the brain of the sheep, which I obtained for the purpose of comparison with them. I have great pleasure in testifying that these delineations represent with remarkable fidelity the appearance which these singular bodies assumed when subjected to microscopic observation.

The effect of the operation was to reduce very materially the tension of the right hypochondrium, but it was observed that the lower part of the tumour which reached the right iliac region was quite unaffected by it.

October 2. The day after the operation, the patient complained of some pain at the site of the puncture. The temperature was  $104^{\circ}$  F., the pulse 140, and the frequent administration of opiates either by the mouth or by subcutaneous injection had to be resorted to for several days. Gradually, however, the pain and fever subsided, and in four or five days the temperature had fallen to  $98^{\circ}$  or  $100^{\circ}$  F., and the pulse to 96, and all danger appeared to be over.

On the 12th Oct., however, the temperature again rose to





*Taenia Echinococcus*,  $\frac{1}{400}$   
From Hydatid Cyst of Liver.



104° F., and the pulse to 120. Her appetite, which had never been good, entirely failed her, and milk, which she tried to take, was vomited, and the following day, October 13, she complained of severe pain about two inches above the site of the puncture, more in the thorax than in the abdomen, but relieved by warm poultices and morphia injections.

“October 18. Says she has no pain, but passes restless nights in spite of morphia injections.

“October 25. Vomiting, which existed more or less since the 21st, still continues. No pain complained of. Pulse 130, small and weak. Temperature 103° F. Countenance sunk, and her general appearance presents signs of great prostration and cachexia. Abdomen very considerably distended and tympanitic on percussion, especially towards the left side beneath the level of the tumour, and there is some degree of tenderness on pressure. There is considerable dulness on percussion at the lower half of the posterior part of the chest on the right side, but respiration is still clear and audible. Bowels loose, two or three stools daily, pale, thin, and without bile.”

After this she gradually sunk, and died early on the morning of the 27th October.

The autopsy was performed by Dr Foulis, Pathologist to the Royal Infirmary, and the following is his report of the morbid appearances:—

*Autopsy*, October 29, 1875.—“Body fairly nourished: rigor mortis feeble: no oedema anywhere: abdomen swollen, firm, round in contour. On opening abdomen the viscera in it are seen covered and adherent to each other by recent, soft, flaky lymph: the adhesions are most firm, and dense at and near the seat of the puncture: over 35 oz. of yellow puriform fluid, with white flakes suspended in it, in the abdominal cavity. The right half of the liver occupied by a large loosely filled cyst, *A*. The liver, when removed, weighed with the cysts intact, 12 lbs. 3 oz.: its tissue granular cirrhotic. The cyst *A* contains three pints of nearly pure pus, in which numberless hydatids are seen floating under the microscope. There seem to be no daughter cysts, but a loose gelatinous greenish yellow bag with thin laminated walls escaped along with the fluid: on its

interior surface are groups of white dots, the microscopic characters of which are those of mere local thickening of the wall substance. The interior of the cyst is white, and coated with white flaky material. Separated from this cyst by a dense partition, and occupying the left half of the liver, is a second cyst *B*: it is lined by black caked amorphous pigment, firm and leathery: under the microscope the pigment has a translucent reddish hue. There is in this cyst a quantity ( $32\frac{1}{2}$  oz.) of greenish brown turbid fluid, in which the microscope shows pus corpuscles, debris, amorphous pigment, but no hooklets or trace of hydatids (search continued over several hours). In the fluid there lies loose what seems to be the counterpart of the gelatinous bag in cyst *A*, namely, a quite leathery, brittle, black, torn bag, whose wall is composed of dark pigment. The two cysts together separate the anterior from the posterior part of the liver almost completely, except at the extreme right margin, where there is a small bridge of liver tissue. Gall bladder normal: bile pale brown. Heart, 7 oz., normal: lungs are compressed, non-crepitant, and flaccid to a considerable extent. Right lung weighs 10 oz., left,  $10\frac{1}{2}$  oz.: brain  $43\frac{1}{2}$  oz., slightly congested, otherwise normal: spleen, 14 oz., firm, dark red; other organs and parts carefully examined; no trace of hydatids anywhere but in the liver."

Now, on these cases I have very briefly to remark, that it appears to be extremely rare to meet with examples of hydatid disease in Scotland. Some ten years ago \* I had under my care in the Royal Infirmary two cases of hydatidiform degeneration of the embryo; in both instances a large quantity of beautiful little vesicles, resembling clusters of white currants, were expelled from the uterus, and the patients recovered. Being consequently much interested in the subject of hydatids (although it is to be remembered that the vesicular growths I now refer to are not true hydatids), I searched the records of the hospital from its earliest period, and found only one case of hydatids recorded, and that was a case where they infested the mamma. I believe, therefore, that the cases I have now de-

\* *Glasgow Medical Journal*, October 1865.

tailed are the only instances that have occurred here where the disease has been diagnosed and treated by puncture.\* It is probable, however, that it may be more common than is generally believed, because it is not recognised in its early stage, but is only demonstrated as a *post-mortem* appearance, when the disease goes on to suppuration and abscess. In a very interesting conversation I had recently with Dr Rainy on this subject, he told me that he had only once, in his long experience, met with a case of hydatids of the liver, and these were contained in the pus of an abscess, and were only revealed after death. Dr Murchison, who has written a very excellent paper on "Hydatids of the Liver" in the *Edinburgh Medical Journal* for 1865, states that, of 2100 *post-mortem* examinations at the Middlesex Hospital, only 13 examples of the disease were found. Even these statistics, however, taken in conjunction with the fact that now numerous instances are to be found related in the medical periodicals as having occurred in England, show that the disease is more prevalent there than with us. In Iceland, as is well known, the disease is exceedingly common. It has been calculated that one-sixth of the entire population are afflicted with hydatid tumours, and one-seventh part of the human mortality is occasioned by them. I shall not dilate on the diagnosis of such tumours more than to remark that, generally speaking, they are slow in their growth, and exist for years without causing any prominent symptoms or constitutional disturbance. They have a peculiar tense elasticity about them, which differs from ordinary fluctuation, but which is highly characteristic. We were not able to distinguish the so-called "hydatid vibration" by percussion in either of the cases, though considerable stress has been laid on this as a symptom. Dr Cobbold, in his large work on "Entozoa," written in 1864, states that at that time this disease had only been correctly diagnosed in two cases prior to the employment of the knife or trochar. We now know, from the records of periodical literature, that the disease

\* My colleague, Dr M'Laren, treated a case of disease of the liver, evidently of a cystic character, by puncture, about the same time as my first case. He drew off a large quantity of a dark-brownish fluid, containing much cholesterine, but no hooklets or hydatids. He intends shortly to publish the case.

has frequently been diagnosed and cured by means of surgical interference, and I wish more especially to remark on the treatment adopted.

It appears to be perfectly safe to puncture with a fine trochar these growths; nay, more than this, it is not only safe, but it is the proper practice, for if left to themselves, they invariably enlarge, and may ultimately burst and imperil the patient's life. It also appears that puncturing once is enough, and that we were wrong in repeating the operation in the first case, for Dr Murchison tells us that it is sufficient to draw off a portion of the fluid, and that no injection of iodine or any other substance is required. The mere withdrawal of a portion of the fluid destroys the vitality of the parasites by deteriorating the element in which they live, and consequently the cysts shrink and disappear. The remarkable change in the fluid drawn off by the second tapping seemed to prove this, it was so charged with blood and bile that it must have proved highly deleterious to the parasites. The earlier the disease can be diagnosed and the tumour punctured, the greater is the chance of a favourable issue. In such a case as the young girl's which I have related, there was such an amount of disease of the tissue of the organ, and the cysts had attained so great a size, that recovery could not be expected. In the *British Medical Journal* for October and November, 1874, nine cases treated by puncture are reported. Dr Humphry, of Cambridge, operated on six of these with only one death; Dr Heaton, of the Leeds Infirmary, reports two successful cases; and Dr Philipson, of the Newcastle-upon-Tyne Infirmary, another.

It is noteworthy how exactly the characters of the thin limpid fluid drawn off tallied with the description given of it by Dr Murchison. The sp. gr. was the same, 1007 to 1008. It answered in the same way to the test of the nitrate of silver, which threw down a copious precipitate of the chlorides, showing that these animals live in a solution of salt or brine; and lastly, the microscope revealed, beyond a doubt, that the disease was a true hydatid growth.

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## IV.—SHORT NOTES OF THREE UTERINE CASES.

By ALEXANDER PATTERSON, M.D., *Surgeon to the Western Infirmary, Glasgow.*

*Read to the Medico-Chirurgical Society, November 5th, 1875.*

I. *Polypus of Uterus.*—Different forms of polypi are met with in the cavity of the uterus itself, or dependent from the os into the vagina. The simple outgrowth of the lining membrane, the *mucous polypus*; a form of greater consistence, the *fibro cellular*; the *glandular*, from enlargement of the uterine follicles; the *cystic*, like a bunch of currants; and, finally, the *fibrinous polypus*. They are all more or less accompanied by hæmorrhage, and the smaller may lead to more dangerous floodings than the larger. They are ordinarily found to exist during the child-bearing period of life. The short notice of the first case I am about to read may give a fair idea of the nature and ordinary treatment of a fibrous polypus growing from the interior of the womb, and falling into the vagina.

M. B., unmarried, aged 43 years, was admitted to the Western Infirmary on the 9th August last. "Patient is rather ex-sanguine in appearance, speaks in a low subdued tone of voice, no dark areola around nipple, no white lines on abdomen. This woman states that up till three years ago her general health has been good, but about that time the menstrual flow began to appear weekly, and continued to do so for twelve months. During the last two years the discharge has been irregular, yet still more frequent than natural, and the quantity larger than normal. At first she complained of a good deal of pain, which has long ceased, and the feeling now is described as "bearing down" when in the upright posture. She states that, on rising, the urine comes away on all occasions, but the discharge from the vagina only now and then. The discharge from the vagina, which takes place between the monthly periods, consists of thick red clots, and sometimes of a yellowish-coloured fluid which coagulates on standing." On examination, a firm oblong tumour was found filling the vagina, and narrowing into a pedicle towards its upper end. On the 14th August

I passed the wire of an "écrasseur" carefully over the tumour, and gradually severed the root, which was found to proceed from the os uteri. There was little hæmorrhage. A sanguineous discharge continued for about a week, gradually lessening. She was dismissed well on the 8th September.

II. *Excision of Uterus.*—Two forms of "falling down of the womb," as the affection is popularly called, are well known to the profession—prolapsus, while still remaining in the vagina; procidentia, where the uterus passes beyond the vulva. Various means of relief have been tried—bandages and pessaries, without number and of every shape, have been used for the purpose of retaining the displaced organ in its natural site. Dieffenbach, in Germany, in 1830, first practised the plan of removing a portion of the living membrane of the vagina, thus causing contraction of the canal and retention of the viscus in its natural cavity. In later years, Dr Marion Sims and other surgeons in America, have somewhat varied Dieffenbach's operation, still, however, adhering to his principle. The following are the notes of a case of *Procidentia uteri*, treated in the Western Infirmary :

Mrs L., aged 49, admitted 17th August, 1875, has been married for the last 26 years, and has had seven children, the youngest of whom is five years old at present. Nine months after the birth of her seventh child she suffered from "falling down" of the womb, and this has continued ever since. During the first fifteen months the protrusion could be returned, and was kept in place by mechanical aid. For the past three years it has remained down, and has increased rapidly in size latterly—the increase dating from the time patient was suffering from an attack of diarrhœa. Patient has seldom left her bed for the past three months, as she could neither sit nor stand without much discomfort. Great pain was complained of on the tumour's first appearance, and there was a very copious discharge, leucorrhœal, I presume. There has been none for two years back. The catamenial discharge has been quite regular, and has escaped by the opening in the most dependent part of the tumour. On



examination a large tumour is found lying between patient's thighs, projecting from the vagina, larger than the human heart, and somewhat cordiform in shape, with an opening at its lower part, or apex. The swelling is consistent to the touch—painless, and covered by a semi-mucous skin, resembling in appearance the skin after a burn. As it emerges from the vagina its covering appears to be continuous with the vaginal mucous membrane, as the finger cannot be passed up higher than half an inch at any part of its circumference. On the 24th August patient was put under the influence of chloroform, and tied up in the lithotomy position. A catheter was introduced, and instead of going upwards behind the pubis, it turned downwards until its point could be felt near the lowest point of the mass; the finger placed in the rectum was found to take a like course on the posterior aspect of the protrusion. We had not to deal with *procidencia uteri* alone, but with a falling down of the entire pelvic viscera.

A horizontal incision was made and the bladder carefully dissected off from the front of the womb, and the same process repeated with regard to the rectum behind. The uterus was then separated from its superior attachments and removed entire, the peritoneal cavity being laid open. There was little hæmorrhage. Four wire sutures were introduced, the ends being left long. The bladder and rectum were then carefully replaced, and the four sutures fastened to each thigh by means of adhesive plaster. The patient was taken back to bed, and ordered to have, if thirsty, ice, soda water, or milk, in small quantity. Urine to be drawn off every four hours.

6 p.m.—Eight hours after operation patient feels slight pain over the lower part of abdomen, and has vomited twice. Pulse 124. Tongue clean.

9.30 p.m.—Same as at six o'clock, but pain perhaps somewhat less. Abdomen considerably distended, but not very painful on pressure. Urine has been drawn off as ordered, varying in quantity from 3 to 6 oz. No blood.

25th August, 10 a.m.—Better to-day. Pain and swelling

of abdomen almost gone. Urine as formerly. Vomited once during the night. Pulse 118.

6 p.m.—Patient's own statement as in the morning. Vomiting still continues at intervals. Pulse 132. Abdomen a little distended, but not painful. Urine more copious.

11 p.m.—No change in patient's feelings. Vomiting more frequent. Pulse 140. Urine drawn off four times since last report, quantity, 10 oz. twice and 8 oz. twice. Discharge from vagina very slight. To have a grain of opium every six hours.

26th August.—Mrs L. feels much better to-day. No vomiting since 11 last night. No pain. Urine 8 oz. every four hours. Pulse 120. Tongue clean.

28th August.—Condition steadily improving. Pulse 108. Urine copious and natural. No motion from bowels yet.

30th August.—Urine passed voluntarily to-day. Steady improvement. Bowels opened.

Sept. 4.—Chloroform was administered, and patient tied up as formerly, the wire sutures were removed, the edges of the labia, from the fourchette forwards to within an inch of the meatus urinarius, pared and brought together by deep and superficial wire sutures.

21st.—Removed sutures, and found the parts firmly united.

Patient expresses herself very gratefully. So far as known to me, no similar operation has been performed.

III. *Presumed Absence of Uterus.*—Patient was brought to me in August last by her mother, who seemed extremely anxious regarding her daughter's health. Patient states that she is 22 years of age, and has been married for fifteen months, but that no symptoms of pregnancy have yet appeared. The mother tells me that her daughter has never altered, either before or since her marriage, and that on the whole her general health has been good. A number of medical men have been consulted on her case, and medicines prescribed and taken, but without

having had the desired effect. Patient is a slenderly-built female, about 5 feet in height, with oval face, fair wavy hair, and by no means chlorotic in aspect. I intimated to the parent that before hazarding an opinion I should like to examine her at home in bed, which was done next day. On making, in the first place, a digital examination, I was surprised to find, that instead of the usual passage leading up to the uterus, nothing but a short *cul de sac* existed, in size and shape exactly like the bowl of an egg cup. By pressing the finger upwards the parts were caused to recede slightly, but the cup shape was resumed on the removal of the pressure. On examining in the erect posture, the roof of the cavity was found to become convex downwards. Nothing in the shape of an uterine mouth or neck could be felt. I then introduced an ordinary medium-sized speculum, which passed up for perhaps an inch and a-half, and with the greatest care inspected every part of the mucous membrane, thoroughly satisfying myself that no opening whatever, communicating with an uterus, existed there. The woman never complains of any lumbar pains or constitutional annoyance at the monthly periods, as we usually meet with in patients suffering from amenorrhœa from ordinary causes. She does complain of pains in the loins and around the pelvis, accompanied by a feeling of "bearing down" on taking what a person in ordinary health would consider a short walk.

Since she can remember she has not been able to walk a mile without sitting down to rest on account of the "dragging down," as she expresses it, at the bottom of the abdomen. She states that intercourse with her husband affords her pleasure. The mammae are extremely small, and the nipples scarcely perceptible. From a medico-legal point of view, this state of matters would, in my opinion, render her marriage null.

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## V.—WOUNDS, IN RELATION TO THE INSTRUMENTS WHICH PRODUCE THEM.

By WILLIAM MACEWEN, M.D., F.F.P.S.G., *Casualty Surgeon, Glasgow; Surgeon to the Royal Infirmary Dispensary, and Lecturer on Medical Jurisprudence at the Royal Infirmary, Glasgow.*

WOUNDS, in relation to the instruments which produce them, have been the subject of extended and careful inquiry. French surgeons have hitherto furnished the greater part of the data on which our present knowledge of this subject is founded. But these observations have generally been confined to sharp cutting or penetrating instruments, and little attention has been paid to wounds produced by blunt instruments, or to those resulting from such substances as glass or earthenware, many believing that these articles leave self-evident traces. In medico-legal treatises the diagnosis of wounds by blunt instruments is scarcely referred to, except under the heading of "lacerated and contused wounds," and wounds by glass or earthenware are stated to be "characterised by their great irregularity, and the unevenness of their edges." But, especially on the scalp, there are many wounds inflicted by blunt instruments which do not come under the category of "lacerated and contused," and very many wounds inflicted by glass and earthenware which have by no means irregular and uneven edges. Former investigators have usually resorted to experiment on the dead body for the elucidation of such questions; and while there are certain advantages to be gained by a definite series of experiments thus conducted, these are, perhaps, counterbalanced by the inapplicability of the conclusions drawn therefrom when applied to living tissue, without certain allowance being made for the difference of the conditions between the living and dead tissue, especially the plasticity and loss of resiliency of the latter. The observations in the present paper were made on the living, as accident in part, but mainly the physical expression of human passion, furnished abundant material.

After an extensive comparison of wounds with the

method of their production, certain characters began to present themselves as appertaining to wounds produced by various kinds of instruments. But before allowing these impressions definitely to formulate themselves, it was resolved to study the next hundred wounds in which the method of production was well ascertained. For the purpose of preventing either previous impressions or the history of the case from affecting the study, it was determined that the characters of the wound should be noted carefully in the first instance, and after that was done the method of its production ascertained from eye witnesses. As this last item was of primary importance, many otherwise interesting cases were thrown aside owing to some uncertainty remaining as to the credibility of the statements made regarding their production. The present paper, although including remarks on wounds generally, has special reference to scalp wounds, the relation of which to the instrument producing them is probably more difficult to determine than similar relations to wounds situated on any other part of the body.

Most of the wounds noted were seen within a short period after their production, while they were yet fresh and bleeding. The greater number of those injured either came or were brought to the Central Police Station immediately after the receipt of their injuries. When the lesion was situated on the hairy scalp the part was first examined superficially, then the hair was shaven from the sides of the wound, a procedure which facilitated the after treatment of the wound as well as its more minute examination. In order to interfere as little as possible with the edges of the wounds when obscured by blood, a gentle stream of clean cold water was poured over them, and in this way the impression left by the instrument remained nearly undisturbed. A lens was frequently used in the examinations, and was of much use in detecting in the sections, irregularities, hair bulbs, &c. The term instrument is used in the following notes, not in the ordinary restricted sense, but in the broad signification implied in *instruments vulnérants*, indicating any material whereby the wounds have been made: adjectives being added

to designate the specialty. The majority of the cases were seen during four months—March, April, May, and July 1875. Some points diagnostic of the kind of instrument used may be developed during the reparative process, but these are not embraced within the scope of the present paper.

Obs. I. *Two wounds from a blow with the fist over supra-orbital ridge.*—On May 14, 1875, a man about 30 years of age, was brought to the Central Police Office, having been assaulted by a man who used his naked fists in dealing his blows.

Half-an-hour after the wound was inflicted he was examined, when the left eyeball was found closed by the greatly distended state of the discoloured tissues surrounding the orbit. The bones of the nose were fractured. There was a cut three-quarters of an inch in length, situated transversely below the eyebrow and slightly below the supra-orbital ridge. There was a second wound half-an-inch in extent near the inferior edge of the orbit. Both of these wounds had fine edges, and were very clearly defined, even when examined by the lens no irregularities could be observed. The edges were neither inverted nor everted, though it was possible that the swelling of the tissues, due to the infiltration of blood, might have dispelled any eversion which was present in the first instance. When these wounds were cleaned of the blood which was coagulated in their interior, the bared bone could be detected. In outline both of these wounds corresponded in shape to the ridges of bone which were near them—the supra- and infra-orbital ridges respectively.

The edges of these wounds did not present anything which in itself could have distinguished them from wounds inflicted by a sharp instrument; but when taken in connection with the state of the surrounding tissue and the correspondence which the outline of these wounds presented with the subjacent sharp bony process, they gave credence to the statement that they were produced by the fist.

Obs. II. *Wound of face by blow of naked fist on infra orbital*

*ridge*.—On July 25, 1875, at the Central Police Office, a man about 18 years, presented himself with a wound on the left cheek fully half an inch below the inferior margin of the left orbit, which he had received ten minutes previously. It was half an inch in length, and at first appeared to involve the skin only; but when the skin was drawn upwards toward the eye, it was found to penetrate the subcutaneous tissue and to lay bare the bone at the inferior margin of the orbit. It formed thus a valved cut. The edges were fine and very clean, and had the appearance of having been cut with a sharp instrument. The outline was straight. There was tumescence of the lower eyelid, and conjunctival infiltration of the lower part of the eyeball. The wound was stated by the assaulted person (and his statement was attested by witnesses) to have been produced by a blow from the naked fist.

It is most likely that this wound was produced by an upward blow of the fist, catching the skin below and carrying it upward till it was forced against the lower margin of the orbit and there cut. From the surrounding tumescence and the conjunctival ecchymosis, it might have been inferred, had a single blow been struck, that that blow must have been inflicted with a blunt instrument; but had more than one blow been dealt, a blunt instrument might have produced the swelling and discolouration, and a sharp one the wound.

Obs. III. *Stellate scalp wound from fall on pavement*.—A woman, aged 27 years, was brought under observation with a wound of the scalp, situated over the left portion of the lambdoidal suture. It was somewhat stellate in shape, and there was marked bruising of the surrounding tissues, which were likewise infiltrated with sand and dust. This wound was produced by a fall from the erect position to the pavement, and is characteristic of many scalp wounds situated on the back part of the head produced by contact with flat surfaces.

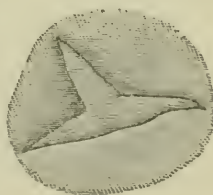


FIG. I.

Outline of wound referred to in Obs. III.

Obs. IV. *Wound on chin from fall on pavement.*—On March 29, 1875, G. S., about 18 years of age, was seen at the Central Police Office with a wound half an inch in length, situated on the right side of the chin, on a line with the lower border of the inferior maxilla, which was exposed. The outline was straight, the edges of the wound were comparatively sharp, the subcutaneous tissues were finely divided, even the periosteum presenting a comparatively clean cut. There was no dirt about or in the wound, and it was stated to have been inflicted a quarter of an hour before it was examined, and not to have been cleaned or sponged. It was produced by a fall forward on the pavement. It would have been difficult to say that this wound had not been produced by an instrument of comparative sharpness, such as a knife, more especially as there was neither bruising of the surrounding tissues nor of the margins of the wound. The ramus of the lower jaw was perhaps sharper than usual at its inferior border, and the chin was destitute of hair.

Obs. V. *Scalp wound from fall on pavement.*—M. R., 29 years, was seen suffering from a cut three inches in length, situated on the back part of head over the occiput. The outline was irregular, the section ran obliquely to the outside of the scalp, which was detached and undermined for about an inch to the left side of the incision. The hair bulbs in this section were free, and in many places projecting from the sides of the wound. This was markedly the case.

This wound was produced by a fall on the pavement.

Obs. VI. *Scalp wound from fall on curb stone.*—M. S. was seen on April 29, 1875, with a wound of a horse-shoe shape, over two and a-half inches in length, which severed the tissues to the skull and raised them in a flap, leaving the skull exposed and partially denuded of pericranium. It was situated on the back part of the head, about an inch above the protuberance of the occipital bone; the convexity of the wound looking downward and backward.

The edges of the wound were comparatively clean, but were slightly serrated in outline, the serration being



visible to the naked eye. There was also a shelving in the thickness of the tissues, the structures at the margin of the wound being divided obliquely from below, upward and forward. Along the surface of the margin hair bulbs were exposed and seemed to be collected in little bundles here and there, and thus gave to the outline of the wound that serration already mentioned. It is to be noted that, of the great number of hair bulbs exposed, none were divided or cut. There was no sand or particles of dust detected in the wound, though looked for with a lens.

This wound was produced by a fall backward from the erect position to the street; the head striking against the edge of a curb-stone.

The direction of the force in this instance could have been determined by the shape of the wound and the shelving of its margins. The force must have acted from below upward and forward.

Obs. VII. *Scalp wound—tongue of depressed tissue—fall against corner of house.*—On May 10, 1875, a man was seen suffering from a wound on the left side of the back part of head. It was over an inch in length, and had a tongue of scalp, lying depressed in the centre of the wound. The tongue was about an eighth of an inch in thickness at base, and tapered away till less than a sixteenth part of an inch at apex.



FIG. 2.

Wound showing depressed tongue of scalp.

This man fell backward from the erect position, his head striking on the sharp freestone corner of a house.

The edges of the wound were rough, the hair bulbs were seen projecting from the cut surface.

It would have been easy to have determined that this wound had been produced by a blunt instrument, and further, from this minute depressed tongue to have determined that it could not have been the result of contact with a flat smooth surface, but that the instrument must have had some projection corresponding in breadth to the depressed tongue.

Obs. VIII. *Wound on brow—exposed nerve filament—fall on stair.*—On July 24, 1875, a man, about 40 years of age, was seen with a wound on the brow running at right angles to left eyebrow. It was rectilinear in outline, had clear well-defined edges, and was an inch and a-half in length. It penetrated the tissues to the skull, the periosteum being keenly divided. On sponging and cleaning the wound a few nerve filaments were seen glistening, and on putting the lips of the wound on the stretch, so as to open them, these nervelets were seen to extend from the one side to the other, about midway in the section. The lens aided the detection of the nervelet in this instance.

An hour previous to my seeing him he had fallen on a stair, his brow coming in contact with one of the stone steps, which produced this wound. As far as the edges of the wound, and the section of the periosteum were concerned, it would have been impossible to have said that this wound had not been produced by a sharp instrument; but the finding of these minute nervelets which stretched from one side of the wound to the other, on a level with the middle of the section, determined that the tissues could not have been cut with a sharp instrument, and rendered it unlikely that an instrument of any kind had penetrated the tissues. In all probability the tissues had been burst open.

Obs. IX. *Wound, with sharp edges, corresponding in shape to supra-orbital ridge and notch,—from fall on edge of pavement.*—A woman, about 30 years, presented herself with a wound under the left eyebrow. It was an inch in length, slightly curved in outline, the convexity being upward, and had a slight notch towards its inner margin. The incision in the skin was clean and well defined, but the tissue immediately underneath did not seem divided, but, on pressing the skin upward, the wound was found to have penetrated the subcutaneous tissue to the skull; a portion of the supra-orbital ridge being laid bare. In shape the wound corresponded with the ridge, the irregularity at its inner margin corresponding to the supra-orbital notch.

It was stated to have been produced by a fall forward,

from the erect position to the pavement, the eyebrow catching the edge of the latter.

Obs. X. *Scalp wound, with clean edges, entire hair bulbs in section of tissues—fall down hold of vessel.*—H. M'C. fell down the hold of a vessel, in all about twenty feet, and received, besides other injuries, a scalp wound, situated transversely on the vertex, two inches in length, and which severed the tissues to the pericranium. The outline was straight, except for a very slight curve at one end; the edges were remarkably clean and clear. There were several hair bulbs protruding from the margins of the wound, and there were none of them cut. It was stated that his head caught against an iron bar bounding one of the apertures in the hold of the second deck.

Obs. XI. *Wound produced by blow of heel of boot, used as weapon in the hand.*—M. S., aged 27 years, received a wound one and a-half inches in length, just under the right eyebrow. The edges were sharp, clean, clear, and beautifully defined; even with the lens they were fine. The outline corresponded with the supra-orbital ridge. It was produced by the heel of a boot, the boot being used as a weapon, and held in the hand of the assailant. This heel was well worn, it had rounded edges, and no sharp prominences. It was eminently a blunt instrument. The wound, therefore, must have been produced by the force acting against the sharp edge of the supra-orbital ridge. There were no grains of sand or foreign substance in the wound.

Obs. XII. *Wound on face, produced by a kick.*—J. W., 40 years of age, was seen on July 26, 1875, suffering from a wound, a quarter-of-an-inch in length, situated about half-an-inch under the right lower eyelid. It was semi-circular in outline, the convexity being downwards, the edges were comparatively clear and well defined, and the inferior margin of the orbit was laid bare for about an eighth of an inch. There was some slight swelling round the wound. It was produced by a kick with a boot; and in outline it corresponded with the inferior margin of orbit.

Obs. XIII. *Wound on face produced by kick.*—M. G., 20 years, was seen on July 28, 1875, with a wound an inch in length, under the lower eyelid. It was slightly curved, the convexity being downward, and communicated in a slanting direction upward with the margin of the lower eyelid. The tissues were much swollen and ecchymosed round the whole orbit. The edges of the wound were keenly cut, the outline being fine, and without irregularity. This wound was produced by a kick from a boot.

These two last-mentioned wounds are very often seen resulting from blows produced by kicks and by blunt instruments directed against this part of the face, and are evidently the result of the tissues being driven forcibly against the sharp edge of the inferior margin of the orbit.

Obs. XIV. *Wound by wooden roller.*—July 16, 1875. A woman, about 25 years, was found with a scalp wound situated in the left side of the vertex. It was angular in shape, the one side of the angle being two inches, the other three-quarters of an inch in length. Between the two sides of the wounds the tissues were raised in a flap, leaving the pericranium bare and beautifully clean. The edges were fine, but the surfaces of the sections were filled with hair bulbs, some protruding, and all of them were entire and not cut.

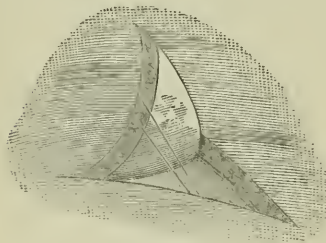


FIG. 3.

Diagrammatic sketch, showing wound with entire nerve fibres stretching across. The lines representing the filaments are rather too thick.

On gently raising the flap, two minute fibres stretched from one side of the flap to the adherent part of the scalp. These two fibres were together, and were nearly parallel. On treating the wound with a stream of pure water they were seen to be of a glistening white colour, and were probably nerve fibres.

The wound was produced by a blow from a rounded wooden roller, such as is used for culinary purposes.

Obs. XV. *Wound produced by wooden beetle*—*Nerve filament*

*and arterial twigs exposed.*—On May 10, 1875, a woman, about 54 years, presented herself with a wound three inches in length at the upper and back part of the head, at level of lambdoidal suture. It was transverse, and presented nearly a straight line. The edges were clean, not very fine, but showed no irregularities apparent to the naked eye. The skull was denuded of pericranium. Two small threads stretched across from one side of the wound to the other at one extremity, and toward the middle a third thread spanned the breach. On minute examination, the two former seemed to consist of the twig of a blood vessel and a nerve, while the latter was a small blood vessel. On pouring a stream of water into the wound the nervelet appeared white and glistening, while the little blood vessels, under similar treatment, presented appearances which differed according to the amount of separation between the lips of the wound. When the lips were put fully on the stretch, the minute vessels appeared of a dull whitish colour, but when the lips of the wound were approximated, the vessels instantly became red from the flow of blood through them. This was especially seen in the vessel situated near the middle of the wound, which was the larger of the two. This phenomenon must not be confounded with that which may take place when a fibre of any kind is stretched between the lips of a bleeding wound by the covering of the fibre with blood through capillary attraction, and so imparting to it a red colour. The stream of clean water poured over the wound simultaneously with its examination causes this source of error to be eliminated.

This wound was produced by a wooden beetle, having no sharp edges or angles, the beetle being well worn and rounded. It was smeared with blood.

Obs. XVI. *Wound of scalp from blow with an iron hammer.*—On August 12, 1875, J. L., aged 28 years, was seen with a wound about an inch in length, situated over the left parietal. It was irregular in outline, and it penetrated the tissues of the skull. The edges were not fine, at the same time they did not present any bruises. There were

entire hair bulbs seen in the wound in the section of the scalp.

This was produced by a blow from a hammer—the irregular outline of the hammer corresponding exactly with the shape of the wound. There was blood on the hammer head.

Obs. XVII. *Two wounds on forehead produced by policeman's baton.*—On August 22, 1875, G. G. was brought under observation, suffering from severe bruises about the body, and two wounds on the forehead. As the latter are only of interest in the present instance, reference will be made only to them.

They were situated between the eyebrows; the one toward the inner margin of the right eyebrow, the other toward the inner margin of the left eyebrow; the wound near the right was situated higher on the brow than its neighbour. They were slightly curved in shape, and corresponded somewhat to the superciliary ridges. The skull was bared. The edges of these wounds were comparatively fine.

Four hours after the occurrence, a reddish-livid mark was seen to pass from between the eyebrows upward over the brow, so as to include both wounds. This mark was three inches in length, and had a breadth gradually increasing upwards from about half-an-inch to nearly three-quarters of an inch.

These wounds were produced by a blow from a policeman's baton. The reddened mark corresponded with the form of that instrument which tapers from the butt toward the handle. It therefore showed that the blow must have been struck from before, and not over the top of the head from behind, as in that case the reddish impress would have had its greatest diameter downward. The prominence of the superciliary ridges probably passively aided in the production of the wounds.

Obs. XVIII. *Wound produced by policeman's baton.*—On July 18, 1875, a man was seen with a wound two inches in length, situated on the left side of the vertex, which laid bare the skull. The edges of the wound were fine and cleanly cut, the periosteum being divided over the entire

length of the wound. There was no tumescence or bruising round the margin of the wound. On minute examination, several entire hair bulbs were seen partially protruding from the surface of its section. The outline was straight.

This wound was produced by a blow from a policeman's baton.

Two days after, the wound seemed healed, and there was no trace of bruising or discolouration in the surrounding tissues.

Here then was a wound with edges which could not have been distinguished from a wound produced by a sharp instrument; but the presence of the *entire* hair bulbs in the wound, indicated that it had been inflicted by some blunt instrument.

Obs. XIX. *Three wounds produced by head of hearth brush.*—On August 21, 1875, M. J. R., 40 years, was brought under notice with a wound two inches in length over the left side of brow, a second under the left eyebrow one inch in length, and a third on the front of the nose about quarter of an inch in length, from which fragments of the bones of the nose protruded.

The first of these wounds was a very keen cut, was straight in outline, and had very fine edges. On separating the lips of the wound, the skull was seen denuded of periosteum nearly the whole length of the wound; but the interspace was bridged by two little blood-vessels, a nerve fibre, and a third little filament of doubtful character.

The other two wounds were rough in outline, and the tissues round their edges were much bruised.

These three wounds were produced by a series of blows from the head of a hearth brush, the wooden portion of which was plano-convex, and consequently had two sharp angles. It is possible that one of those angles produced the first wound, while the rounded portion might have caused the two latter. The head of the instrument was covered with blood, which was still moist when examined.

Obs. XX. *Two wounds on forehead, produced by handle of hatchet.*—E. B. was seen suffering from two wounds situ-

ated on the forehead. One, running nearly transversely, was on the left side of the brow, bordering on the hairy scalp. It was two inches and three-quarters in length; its outline was straight; its edges were sharp, and clearly defined. It penetrated the tissues to the skull. Toward the upper termination of the wound proper there was a crack in the skin, on each side of which the tissues were reddened for about half-an-inch beyond the end of the incision. Besides, there were several small blood vessels and one nervelet spanning the aperture of the wound.

The other wound was curved in outline, convexity upwards, but its edges were very sharp and clearly defined. It was about an inch in length, and was superficial.

The wounds were both stated to have been produced by the sharp edge of a hatchet. From the above I was able to state that the first wound was not produced by a sharp penetrating instrument, but by a blunt one. This was afterwards abundantly verified, as several witnesses stated that it was the handle of the hatchet with which the blow was inflicted. The other wound corresponded to the supra-orbital ridge in shape.

Obs. XXI. *Wound produced by hazel stick.*—On July 20, 1875, a man, about 40 years of age, was examined, and found to have a wound one inch and a quarter in length, situated on the left side of the brow, at the junction of the brow with the hairy scalp, which penetrated the tissues to the skull. In outline the wound was straight, the edges were clean and clear, and the section was very smooth. In the hairy portion of the wound there were one or two hair bulbs prominent, but they would not have attracted attention if they had not been minutely looked for.

This wound was proven to have been produced by a rounded hazel stick; but as far as the edges of the wound were concerned, it would have been difficult to have said that they were not produced by a sharp cutting instrument. The presence of the free and entire hair bulbs showed that the wound must have been produced by a blunt instrument.

Obs. XXII. *Sharp wound produced by contact with lamp*



*post.*—On July 12, R. M'L. came under observation with a perpendicular wound on the front of the forehead, an inch and a-half in length, which penetrated the tissues to the skull. Its edges were sharp and clearly defined; its outline was straight.

This wound was produced by the person, who is almost blind, coming in contact with a lamp-post. She had gone out during the day with a restless little boy, leading him by the hand along a quiet street, when the little fellow ran away from her, and she made several quick steps forward and tried to clutch him, and in her endeavour to do so her head came violently against a lamp-post. When the fluted column, with its sharp ridges, is recalled, little wonder will be expressed at the sharpness of the wound.

Obs. XXIII. *Wound caused by the falling of a box.*—On March 25, 1875, W. C., aged 25 years, was seen suffering from a wound three inches in length, situated on the right side of the brow and running transversely across. The tissues, which were much bruised, were raised in a flap, and were torn from above downward for more than an inch; the skull was bare, serrated, and dirty. The line of the wound was very irregular.

This was produced by the fall of a heavy box which caught this man's brow in its descent.

From the bruising and general character of the wound, it would have been easy to have stated that it must have been inflicted by a blunt instrument, and, from the direction of the flap, that it must have been produced by a force directed from above downwards.

Obs. XXIV. *Wound produced by blow from tin can.*—On July 27, 1875, a man about 37 years of age was seen suffering from a wound one inch in length, situated on the back part of the head. The outline was straight, the edges were comparatively blunt, the entire hair bulbs being seen projecting from the surface of the lips of the wound, and the skull was bare.

This was produced by a blow from the sharp angle of a tin can, which was held in the hand.

Obs. XXV. *Wound on left side of trunk from stab by pointed end of file.*—M. M'A. or C. was seen on October 23, 1875, suffering from a wound on the left side of the trunk about the level of the false ribs. There were two external openings, nearly on a level with one another, the one situated further back than the other. The anterior wound had an irregular outline, and was about the size of a sixpence, while the posterior was not larger than half a threepenny piece, and had a semilunar form. The anterior opening communicated with the posterior, so that the wound was transverse. In front of the anterior opening the skin was roughened, and had the appearance of a "brush burn"; the little particles of cutaneous tissue were raised from before backwards, some of them standing on end. From these minute appearances it was probable that the wound had been inflicted by a thrust from before backwards, and that the instrument used had rough sides.

This was produced by a thrust from the end of a brass-finisher's file—the spike end, which should be inserted into a wooden handle, but which had no handle in this instance.

This instrument penetrated the stays and other clothing, so that the blow must have been delivered with much force.

Obs. XXVI. *Two wounds produced by an iron file.*—On February 28, 1875, H. M. was examined, and two wounds were found on his head, situated at the front of parietal suture on its left side. They were each about an inch and a-half in length, and penetrated the tissues to the skull; one of them furrowing the bone. They lay toward each other, so as to form a triangle, with the apex wanting. The edges were clearly defined, and presented no irregularity or roughness; they had the appearance of edges that might have been produced by a sharp instrument.

The wound was stated to have been produced by a blow with a file. The file produced was made of iron, and when the free extremity was placed between the wounds, they corresponded with its borders. Yet the intervening tissue

did not seem bruised. The scalp must have been split in this instance.

Obs. XXVII. *Three scalp wounds produced by an iron bar.*—On April 16, 1875, a man, aged 22 years, was seen with three wounds on the scalp, two about an inch in length, one about half an inch; the skull was only exposed in one of these cuts. The outlines were straight, the edges were rough, principally from the appearance of the bundles of hair bulbs seen on the surface of the section. There was no bruising round the edges of the wounds. These three wounds were produced by an iron bar, used for securing a door. It was flat, two feet in length, two inches broad, and had an edge a quarter of an inch in thickness.

Obs. XXVIII. *Two wounds from fall of broken cast iron gutter.*—On October 18, 1875, M. H., 65 years, was found to have a wound, two and three-quarters of an inch in length, on the front of the forehead, near middle line. The edges were fine and very clean, the tissues were penetrated to the skull, the bone being exposed throughout the entire length of the wound, and a portion of the skull—the external table at least—was fractured. In the section the entire hair bulbs were seen protruding. As far as the edges were concerned, they could not have been distinguished from those produced by a sharp knife. The hair bulbs, however, showed the nature of the instrument which produced the wound.

It was caused by a blow from a cast metal gutter which had broken and fallen from a roof, about two stories above where this person was standing. Another portion of the iron struck her left leg in front, and inflicted a wedge-shaped wound with the apex upward. In this wound the edges were clean, but the tissues were folded back, and the contour was so far destroyed. The direction of the force could have been approximately ascertained from the shape of the angle.

Obs. XXIX. *Wound produced by blow of tongs.*—On 8th July, 1875, a man, aged 45 years, received a wound on the right side of the face. It was Y shaped, about an inch in

length, penetrated the tissues to the zygomatic arch, which had sustained a comminuted fracture. The edges of the wound were rough, and the muscle underneath was coarsely torn. It was produced by a blow from the distal extremity of a pair of tongs.

As there was only one blow given, it is probable that the tongs were slightly open, and that they closed during the contact with the face. This would account for the Y shape of the wound.

Obs. XXX. *Two wounds produced by single blow of policeman's whistle.*—J. M'M., 18 years, was seen on July 27, with a wound on the left lobe of the ear, and another in corresponding position behind the ear on the scalp. Both of these wounds were about quarter of an inch in length, and had fine keen edges, which could not be distinguished in this respect from those produced by a knife. They were straight in outline.

It was alleged and attested that this wound had been produced by a blow from a policeman's whistle. The whistle was of brass, the mouth-piece having comparatively sharp edges. The butt end was swung by a piece of string, and it was alleged that the constable was swinging the instrument in his hand at the time when he lifted it and struck this lad on the ear.

Obs. XXXI. *Six wounds on the scalp produced by a poker.*—J. H. was seen on March 1, 1875, having six wounds situated on the back part of the head, over the occiput. Each of them was about an inch in length externally, and penetrated the tissues to the skull. All of them looked, at a short distance, like clearly defined wounds, which might have been produced by a knife; but on closer and more minute inspection three of the six were found to have slight irregularities on their margins. The other three were sharp and clearly defined, even on most minute examination. In four of these, entire hair bulbs were seen on the sections.

They were all produced by a poker, which was four-cornered, several witnesses attesting that this was the only weapon used.

Obs. XXXII. *Wound on head produced by poker.*—A. M. N. was examined on March 1, 1875, when it was found that he had sustained a wound, over two inches in length, situated on the front part of the left side of the head, and completely dividing the tissues to the skull. The periosteum was divided for about half-an-inch, and the wound in it was clean and clear. The edges were sharp and clearly defined, not the slightest roughness being visible. The outline was straight.

This wound was produced by a poker, the man seeing the instrument being raised and the stroke delivered before he had time to protect himself.

Obs. XXXIII. *Wound on head from blow with four-cornered poker.*—On March 14, 1875, James Stewart, about 25 years of age, was seen with a wound on the vertex of the head, which was two inches in length, and severed the tissues to the skull, about a quarter of an inch of the skull being denuded of periosteum. The edges were slightly rough, though there was no indication of bruising. The outline of the wound was straight.

This wound was produced by a blow from a four-cornered poker. It was seen twenty minutes after it had been produced.

Obs. XXXIV. *Wound on the face by blow from a poker.*—On May 10, 1875, M. T. was seen with a wound, two inches in length, situated on the forehead and nose, running in an oblique direction from above downwards, and from left to right. The tissues were penetrated to the skull, the skull was fractured—at least in its external table—the bones of the nose were broken, and the nasal cavity opened from above. The edges of the wound were serrated and inverted.

This was the result of a blow from a poker, a thin round rod of iron, about one foot in length.

These two last wounds could easily have been referred to some blunt instrument, from the character of their edges, and their general appearance.

Obs. XXXV. *Scalp wound by blow from a poker*—Corres-

*pondence of wound to instrument.*—On August 12, 1875, a woman was examined, and found to have a wound about two inches in length, situated on the vertex of the head, and which divided the tissues to the skull. The section presented slight irregularities in the shape of small partially detached pieces of tissue. The periosteum was, however, finely divided. The outline was irregular.

This wound was produced by a poker, a thin, rounded, well-worn rod of iron, which was bent in an irregular manner towards its distal extremity. On comparing the instrument with the wound, it was found that one of the irregular curves of the instrument corresponded with the shape of the wound. Moreover, on this part of the instrument there was blood and a single long hair which corresponded in colour with the hair on the patient's head.

Obs. XXXVI. *Two wounds with hatchet—difference in wounds.*—On the 10th May, 1875, M. W., aged 40 years, was seen with a wound, two inches in length, situated on the right side of the head, near the junction of the parietal and the frontal bone, lying in an oblique direction from before backward. Its outline was straight, the edges were rough, the tissues on each side were bruised, especially on the upper side, where they were also undermined. The pericranium was *intact*.

This wound was produced by a blow from a hatchet; a wound being seen on the right arm, which was also ascribed to a cut from the same instrument, received while warding off a previous blow. The wound on the arm was over an inch in length, and was comparatively sharp in outline and edges.

This was an interesting case, showing that the same instrument, used by the same person at the same attack, may produce two wounds having different characters. The wound on the arm had the characters of having been produced by a comparatively sharp instrument, which corresponded with the hatchet, while the scalp wound had the appearance of having been produced by a blunt instrument. The witnesses were positive in stating that the sharp edge of the hatchet

was used in producing both wounds, the one wound having been inflicted immediately after the other. The assaulted person corroborated this.

Obs. XXXVII. *Wound of scalp and furrow of skull—hatchet.*—J. S., constable, was seen suffering from a wound situated on the front of the head, near the middle line. It was one inch and three-quarters in length, and penetrated the tissues to the skull. Its edges were sharp and clean, its outline straight. The skull was furrowed, the periosteum lying back from the furrow

Obs. XXXVIII. *Wound of scalp and furrow of skull—hatchet.*—At the same time as above W. C., constable, was seen suffering from a wound on the front part and left side of the head. It was one and three-quarters of an inch in length, and penetrated the tissues to the skull. The edges were keen and evenly divided; the outline was straight. There was an incised furrow in the skull between an eighth and a quarter of an inch in depth, and about an inch in length. Closely fitting in this furrow was a fragment of leather glazed on one side, half an inch in length and a sixteenth of an inch in breadth. This was first discovered by the finger nail in examining the wound. It corresponded to the inside lining of the policeman's helmet. There were several hairs lying over the wound, which were cut in the middle of their length. The helmets of both of these men were cut through, the incision in one being very fine, in the other slightly serrated. In the inside of C's. helmet there was a number of incised hairs adhering to the cut in the felt, and a small portion of the glazed leather wanting. The portion found in the wound corresponded to this. These wounds were produced by a hatchet, which a man made use of in attacking the police while in execution of their duty.

Care must be taken to discriminate between a furrow in the skull and a mere incision in the pericranium, as the latter when lying close and firmly attached is apt to deceive, until the difference is recognised. The tyro often makes this mistake.

Obs. XXXIX. *Wound produced by carving knife.*—On March 21, 1875, J. C. was seen with a wound half an inch in length externally, situated on the hairy scalp. The edges were clean, clear, and well defined, and the outline was straight. The skull was bare. On examining this wound with the lens, after some time a hair bulb, which was on the margin of the wound, was seen to be divided longitudinally. The section of the bulb was keen. There were no entire hair bulbs seen in the section.

This was produced by a thrust with a sharp-pointed carving knife.

Obs. XL. *Wound produced by breakfast knife.*—On April 19, 1875, a woman, about 30 years of age, presented herself with a wound on the forehead near the middle line, which lay in an oblique direction from above downward, and from left to right. The edges were cleanly cut, the tissues were divided in a perpendicular direction for nearly an inch, and then the section became oblique, and the scalp was raised for about half an inch in breadth from the margin of the wound backward and to the right side. The vessels—arterial twigs—were all open and spouting, they were finely divided, and presented no ruggedness.

This wound was produced by a well-worn, thin-bladed table-knife, and the slightest pressure on the point of the blade from the handle caused it to yield and bend. The wound would in this way be accounted for. The upper straight portion of the wound would be produced before the extremity of the knife reached the bone, but when it did reach the skull, the pressure of the handle forward toward the point would make the blade yield, and so cause the deflection mentioned.

Obs. XLI. *Two wounds with table knife—suicidal.*—On July 1, E. L., about 30 years, was seen with two wounds, one on each arm. She was pale and blanched, almost pulseless. She was much exhausted, and could scarcely speak. Her clothes were saturated with blood, and it was stated that she was found in a pool of blood on a stair.

The wound on the left arm was situated near the flexure,



it ran transversely, was over two inches in length externally, and severed the muscles and brachial vessels and exposed the bone. The one on the right arm was also situated near the flexure, and was an inch and a-half in length externally, and severed the vessels. The hæmorrhage from these wounds had almost ceased bleeding, and only an oozing continued. There were several *sprays* of coagulated blood, evidently from arteries, over the face, the hair, and the clothes. The edges of the wound were very fine, and keenly cut. Outline straight. She stated that she had produced them both with a table knife, as she was determined to kill herself, and understood that this was a likely place to produce death quickly.

In both wounds the brachial was divided. She stated that she inflicted the left wound first, and afterwards the right, which was much the slighter of the two. This case is interesting in showing how such a wound as that on the right arm might be produced even after the left arm was so much injured.

Obs. XLII. *Wound, with large blade of pocket knife.*—In June, 1872, a policeman, about 30 years, received a wound, one inch in length, in front of the left thigh, near the apex of Scarpa's triangle, which penetrated the tissues and exposed, but did not injure, the femoral artery. The edges were comparatively fine, but inverted. The outline was straight. The case was seen ten minutes after the wound had been inflicted.

The wound was produced by a blow from the large blade of a pocket knife, which was very thin and well worn.

Obs. XLIII. *Wound by sharp pocket knife—small blade.*—On July, 1875, a man, about 40 years, presented himself with a wound on the head, about two and three-quarters of an inch in length, which exposed the skull. The outline was markedly irregular, though the edges were fine. There were several finely divided hairs lying over the wound.

It was produced by a pocket knife; one of the small, narrow blades of which was drawn across the scalp.

The divided hairs which lay loosely on the head among

the other hairs would have indicated of themselves that a sharp instrument had been used. They were cut at various distances from their insertion in the scalp, according, probably, to their position at the time of the infliction of the wound.

Obs. XLIV. *Wound produced by single edged pointed knife.*—On July 19, 1875, M. M.K. was seen suffering from two wounds on the left side of the face, a short distance from the point of the chin. One of them was above the



FIG. 4.

Wound with two external openings produced by single blow of pocket-knife. The upper is the wound of entrance.

ramus of the jaw, the other below the jaw—a quarter of an inch of tissue intervening between them externally. The two apertures were found to be connected together by a single internal wound fully an inch and a quarter in length, which penetrated the tissues obliquely. Both of these external wounds had a convex and a straight border; both curved borders being inverted. The upper wound was half an inch in length along its straight border, while the straight border of the under was a quarter of an inch in length. The shape of the apertures and their relative positions were peculiar, and were probably determined according to the direction of the tension of the parts in which they were situated respectively. This is best seen in the diagram.

The knife, which was a single edged pointed instrument, was half an inch in breadth at its broadest part. This was stated to have been produced by a single blow of a knife, from above downwards.

Obs. XLV. *Wound by shoemaker's knife.*—J. L. was seen on May 20, 1875, with a wound on the anterior surface of the abdomen, to the right of the middle line. It was an inch in length externally, and penetrated the tissues in an oblique direction upward for fully an inch. The edges of the wound were fine and cleanly cut, but the contour was irregular.

This was produced by a blow from a shoemaker's knife.

Obs. XLVI. *Wound by shoemaker's knife.*—On July 30, 1875, J. O'H. was wounded on the head over the left parietal. The wound was an inch in length externally, and penetrated the tissues in an oblique direction, exposing the skull for about a quarter of an inch. The edges were very keen. There were no entire hair bulbs visible, and the cut surfaces were very fine.

This wound was produced by a shoemaker's knife.

Obs. XLVII. *Wound produced by ham knife.*—On 17th May, 1872, J. M'C. presented himself with a wound four inches in length, situated on the front part of the thigh above the knee, and which laid the former bare for full two inches. The edges were very fine, and at the lower border the wound tapered away to a scratch.

This was produced by a large ham knife with a keen edge.

Obs. XLVIII. *Wound produced by razor.*—I was asked to see a man who was supposed to have cut his throat.

He was a man about 40 years of age, who lay in bed with his head bent forward on his breast, and a peaceful expression on his blanched face. The left hand hung over the bed and was smeared with blood; and before disturbing the position of the clothes there seemed to be no cause for this appearance. There was no disturbance or disarrangement of any of the articles in the house, and no marks of struggle. But on looking narrowly at the wall at the back of the bed, which was rather dark, a series of curved lines in the form of blood sprays were depicted. The right hand lay over the right side of the bed, which was close to the wall, and it held loosely a razor, so loosely, indeed, that on the bed being moved outwards, the razor fell on the floor. A pool of blood lay under the bed.

On raising the beard and elevating the chin a gash was found, which ran obliquely from left to right, and from above downwards, severing the structures to the vertebræ. The trachea, œsophagus, carotids, and jugulars were completely severed. The edges of the wound were finely divided, and

the whole section was very clean. The razor had been newly sharpened, as was afterwards ascertained, before being used.

This instance is one of a number of cases of cut throat which have come under observation, and suits well here for the purpose of comparison.

Obs. XLIX. *Wound produced by a dagger.*—A girl, about eight years of age, was seen with two wounds on the right leg above the knee, one on each side of the limb. The one on the inside of the knee was an inch and a half in length externally, while the one on the outside was about half an inch externally. The edges of the former were everted, while those of the latter were inverted. The edges of both wounds were comparatively smooth and clean, while their outline was straight, and lay longitudinally to the limb. On noting that the edges of the one were inverted while those of the other were everted, it was thought that they might communicate with each other, which was soon determined to be the case. The passage was found to lie close to the bone, directly in front of the femur. It was concluded that the instrument had penetrated from the inside of the limb, from the larger wound being on the inside, and since on withdrawal of a comparatively sharp instrument the edges of the outer wound would be inverted, while those of the internal wound would be everted. This was found to be the case.

The wound was produced by a dagger which was thrown from the distance of a few yards, the girl standing with her left side toward the person who threw it, and thus the instrument must have penetrated from within outwards.

The dagger was flat, tapered towards the point, and had comparatively sharp edges.

Obs. L. *Eight wounds on hand produced by rounded conical iron instruments.*—A man, 25 years of age, was admitted to the Royal Infirmary under my care in September, 1875. His arm at the wrist was so much lacerated and shattered that amputation was necessary. But the point of interest at present

lies in the state of the hand. The dorsum of the hand was riddled with eight cuts disposed in two rows, running transversely across the hand, five cuts in the distal and three in the proximal row. Each of these incisions lay transversely to the axis of the limb. In length they were each about half a centimetre. They had comparatively fine edges, some of which were inverted. There was one whose edges were separated so as to assume a slightly oval form, but with this exception the edges of the others were comparatively closely approximated. These were inflicted by the rounded conical iron teeth of a teasing "devil" in a wool mill. As the wounds lay it would have been difficult to determine whether they had not been produced by a flattened knife with two sharp edges; but when the skin was put on the stretch on the proximal and distal sides of these wounds, these otherwise transverse incisions assumed a somewhat rounded form—a form resembling the circumference of the instrument which produced them.

Obs. LI. *Three wounds produced by a table fork.*—A. J. was brought under observation, supposed to have been stabbed. On the right cheek were three minute punctures in a line, on the left shoulder were three similar punctures, while on the left side of the chest behind were two punctures in a line. These last lay almost horizontally to the left side of the chest. All of these punctures were about the same diameter, they barely admitted the probe. Some penetrated the tissues for nearly an inch, while others were only a few lines deep. They were produced by a long steel table fork, with three prongs. The latter wound, which presented only two punctures, is accounted for by the instrument running at right angles to the surface, two prongs striking one side while the third prong ran free. This supposition was confirmed by an examination of the clothes, as they bore three punctures over the situation of this wound.

Obs. LII. *Wounds produced by a hair pin.*—H. O'H. was seen with several punctures on the scalp, one, half an inch deep, having a diameter which barely admitted the probe. These punctures were produced by

a hair pin—an instrument not unfrequently used in female warfare.

Obs. LIII. *Three wounds on arm, produced by thrusting it through pane of glass.*—On April 13, 1875, a woman presented herself with three incised wounds on the left arm. Two of them were on the anterior surface of the forearm, and were each about half an inch long, while the third was situated on the dorsal aspect of the forearm, and was about quarter of an inch in length. All of them penetrated deeply into the muscles. The edges of all were sharp and clearly defined. The two former had sharp extremities, but the final terminations were slightly to the one side: that is to say, taking the wounds as a whole, their outline was straight, though their terminations were nearer one side than the centre. The third wound had sharp edges, and its terminations were in the centre of the line. All of them were straight in outline. There were, besides, some slight superficial cuts on the knuckles, which might easily have been overlooked if not searched for. These were very fine and clean in their edges. Foreign matter was neither found in any of the wounds nor about the arms or clothes. These wounds were produced by the woman thrusting her hand through a pane of glass in the window of her own house; and they were seen and examined ten minutes after they were produced, while they were still bleeding profusely.

Obs. LIV. *Six wounds of forearm, produced by the hand being thrust through a pane of glass.*—On July 16, 1875, E. O'N. was examined, and found to suffer from a wound situated near the flexure of the right forearm, which was an inch in length, and penetrated the tissues to the ligaments of the elbow joint. The outline was curved, but the edges were fine, and slightly inverted. The hæmorrhage was most profuse.

This woman accused a man of having stabbed her with a knife, stating further that he intended to kill her, and would have done so if she had not struggled and cried for assistance. But on minute examination five small incisions, varying from a sixteenth of an inch to an eighth of an inch in length, were found situated on the right wrist and back of the fingers

and knuckles of the right hand. Two of the knuckles were serrated, and had some of the skin scraped off. Of these five wounds four were straight, the fifth rugged in outline. There were no portions of glass in the wound.

Those appearances agreed much more with cuts produced by glass, and it was proved by eye witnesses that she had thrust her hand through the window, and then turned round and accused the man for having stabbed her. The woman afterwards confessed that she had thrust her hand through the pane of glass.

Obs. LV. *Wound of wrist produced by thrusting hand through window.*—John — was seen with a wound on the palmar aspect of his right wrist, two and a half inches in length, which penetrated the tissues to the radius, dividing the radial artery. The edges were fine and cleanly cut, and the divisions in the muscles were equally fine. The outline was straight. There was no foreign matter in the wound.

This was produced by the man, while in an excited state, thrusting his hand through a pane of glass.

Wounds thus brought about are most often situated on the wrist, and very often the radial side is most affected.

Obs. LVI. *Wound produced by clenched fist coming in contact with a mirror and breaking it.*—On July 25, 1875, a woman was found with a wound two inches and a quarter in length, situated on the dorsum of the right hand, from the space between the index and middle fingers, backward and upward toward the wrist. The skin was divided most clearly and sharply, and the subjacent tissues presented likewise a keen edge; the tendons being exposed and partly severed. The outline was very straight till near its proximal extremity, where there was a slight curve. The wound could not have been more cleanly, clearly, or sharply defined. There was neither inversion nor eversion of its edges, and this is generally the case when anything but a very sharp instrument has been used. The wound was produced by the back of the clenched fist coming violently against a mantlepiece mirror, which was broken by the contact, and one of the sharp pieces cut the hand. There were no fragments of glass in the wound, or

about the hand, and there were no other wounds. The curve at the proximal extremity of the wound was not more than what could have been, and many times is, produced by a slight swerving of a knife, as it passes over the tissues.

Obs. LVII. *Wound produced by a fall through a glass roof.*—On July 27, 1875, J. G. presented himself with a wound three inches in length, situated on the brow toward the left side. This wound exposed and furrowed the skull, the periosteum being finely divided, and the skull being cleanly cut, the greatest depth being nearly an eighth of an inch. The edges of the wound in the tissues were clearly and sharply defined, and the outline was straight. This wound was produced by a fall from a height of about ten feet, through a glass roof about twenty feet from the ground. There was no glass in wound.

Obs. LVIII. *Wound produced by the fall of a piece of glass from a glass roof.*—On July 31, 1875, C. M. presented herself with a wound on the left side of brow nearly three inches in length. The tissues were raised in the form of an angular flap, the apex being upward, and the skull exposed for about an inch. The edges of the wound in the soft parts were clean and sharp. This was produced by the fall of a piece of plate glass from a roof, about ten feet above the lady's head. There were no portions of glass or other foreign material in wound. The direction of the force could have been determined by the form of the flap from above downwards.

Obs. LIX. *Wound produced by crystal jug.*—On April 18, 1875, a man, about 25 years, was seen with a cut an inch in length, on the palmar aspect of the hand, near the thumb, which penetrated deeply into the muscular tissue. It was straight in outline, was very keenly cut, and presented a very fine edge.

Obs. LX. *Two wounds produced by crystal jug.*—At the same time a woman, about 20 years of age, was examined, and found to suffer from two wounds of the palm, one toward the inside, the other toward the outside of the hand. The



former was an inch in length and straight, while the latter was half an inch in length and curved. The edges of both wounds were acute and clean. There were, besides, on this woman's hands some small sharp cuts about an eighth of an inch in length, and very superficial. They were scattered irregularly over the palmar aspect of the fingers and the wrist. The outlines of the wounds were straight. In both cases the wounds were produced by a woman, who attacked both persons with a crystal jug, the jug breaking against their hands as they endeavoured to protect themselves. They were seen five minutes after the wounds had been produced, while they were still streaming with blood, and before they had been washed or touched in any way. There were no portions of crystal to be found in any of the wounds, and none about the hands or clothes. They could not have been more finely divided by the sharpest instrument. Witnesses of the occurrence brought portions of the crystal jug smeared with blood.

Obs. LXI. *Three wounds produced by a porcelain jug.*—On March 8, 1875, E. O'N., aged about 25 years, was examined and found to have a wound six inches in length, which severed the tissues to the bones. It was situated on the left side of the face and brow, commencing near the junction of the brow with the hairy scalp, and passing downwards in a somewhat straight line over the face, and ending in the neck. Portions of the skull, the malar bone, the ascending ramus of the lower jaw as far as the angle, were exposed. It was a beautiful, clean, clear cut, as if it had been made with a razor. There were also two wounds, one on the forehead and another on the back of the head; they were each about an inch in length, and, though sharp, were blunt when compared with the large wound just mentioned.

These wounds were produced by a blow from a porcelain jug which broke into fragments as it came in contact with the head and face. They were examined a few minutes after their infliction, while they were still bleeding, and there were no portions of earthenware found in the wounds.

There were portions of a broken jug, covered with blood, brought to the police station, alleged to be the article which produced the wounds.

Obs. LXII. *Wound produced by an earthenware basin.*— On April 15, 1875, a man presented himself with a wound, situated over the left parietal bone, which was two inches in length, and penetrated the tissues to the skull. The skull was also incised, *a furrow running in the bone for about a quarter of an inch.* In one end of this furrow a fragment of earthenware was found firmly impacted, its surface being flush with the skull in such a way that it might easily have been overlooked. There was no other portion of earthenware about the wound. The edges of the wound were clean and clear, the outline was straight, and it terminated keenly at both extremities. This wound was produced by an earthenware basin, which had been thrown from a distance of a few yards, and which broke when it came in contact with the head.

Obs. LXIII. *Wound produced by an earthenware bowl.*— On April 17, 1875, a woman, about 40 years of age, presented herself with a somewhat curved wound, situated on the posterior and upper part of the head, which raised the tissues in a flap from the skull, *and produced a roughened serrated mark on the bone, extending fully a quarter of an inch* along the surface of the skull. The edges of the wound, were very sharp and keen. The outline was straight. There were no portions of earthenware in the wound.

This wound was produced by an earthenware bowl, which was thrown from a short distance, and which broke as it came in contact with the head.

Obs. LXIV. *Wound of gluteal region, from a "pot de chambre."*— On July 15, 1875, P. M'J., a man about 40 years, was carried in a much exhausted state to the Central Police Station, bleeding profusely from a gash on the gluteal region. It was on the right side, situated between the trochanter major and the tuberosity of the ischium. It was fully four inches externally, and fully two inches deep. The edges were extremely fine and sharp, and the outline was straight. There were several large arteries

which had to be tied, and some small ones twisted. There were no portions of earthenware found in the wound.

This wound was produced while the above was sitting on a *pot de chambre*, the utensil giving way beneath his weight. It was stated that it had not been cracked before giving way in this manner.

Obs. LXV. *Wound of gluteal region, from a "pot de chambre."*  
—In 1873, I saw a wound similarly produced and equally serious in loss of blood. A girl, about 18 years of age, was examined and found to have sustained a gash between the trochanter major and the tuberosity of the ischium on the left side. It was three inches in length externally, and penetrated in a backward direction for fully three inches. The edges were keenly cut, not the slightest irregularity in outline. The bleeding was most profuse. The girl, through delicacy, had remained in her room till she felt herself faintish, when she cried for aid, and her parents found her in a pool of blood with her clothes drenched. The *pot de chambre* had given way with her weight, and broke into fragments—one, which was all smeared with blood, was wedge shaped, with very fine cutting edges. There were no portions of the earthenware or foreign material found in the wound. It was stated that, as far as any of the members of the household knew, there had been no crack in the utensil.

In both of these cases the amount of hæmorrhage was so great as to prove serious, and in the latter instance even to endanger life. In both cases, from the loss of blood, the wounded were so far reduced as to be unable to stand or walk, and it may easily be conceived that, had they met with the accident in a place where help was not readily attainable, they might have succumbed. In both cases delicacy was expressed regarding the mode whereby they met with their wounds. In the latter case this was shown by the girl screening the injury until she felt faint from loss of blood. In the former case the man accounted for his injuries by saying that he fell against "a sewing machine," and as long as bystanders were present he maintained this; but

when alone and confronted by the true statement made by his wife, he confessed that her statement was correct, though he would not like it to be known. It was also negatived by the fact that the sewing machine had no parts which were likely to produce the wound, by its being in a room where there was no blood, and by the absence of blood on any of the parts of the machine itself. On the other hand, the *pot de chambre* was covered with blood and broken into ten pieces. The floor in many places was covered with blood in the room where the utensil was found.

These facts are dwelt on for the purpose of showing how even a fatal wound might thus simply be produced, and how the person, if seen before death, might through delicacy attribute its production to some other means, or maintain a reticence on the subject, both of which might afterwards produce suspicions implicating some innocent individual. The broken utensil, if not gathered up and thrown away by some unthinking person, might be thought to have been broken during the hypothetical struggle, and so leave the way clear for some ingenious counsel, with the utmost good faith, to conjure up some terrible tragedy.

Obs. LXVI. *Wound of eyeball, due to earthenware.*—In July, 1875, a man presented himself with a wound of the left eyeball and a slight scratch on the cheek at the outer side of the eye.

There was a portion of earthenware found in the eyeball about quarter of an inch in length, and about an eighth of an inch in breadth, and not more than a sixteenth of an inch in thickness. It was completely embedded in the conjunctiva, lying in an oblique direction. It was removed. After removal, the incision was seen to be very fine and keen. Had there been no material found in the wound, it would have been impossible to have diagnosed whether the wound had resulted from a knife or a portion of glass, &c.

Obs. LXVII. *Wound of eyeball, due to glass.*—Another wound of the eyeball occurred shortly prior to the above, in which a portion of glass was found in the eyeball. It was not quite so large as the piece of earthenware in the

preceding case. After removal the wound of the conjunctiva was seen to have very fine edges.

It is interesting to note that both these wounds retained a portion of the material which produced them; while so many wounds on other parts of the body, produced by similar substances, very rarely retained pieces of the material with which they were produced.

Obs. LXVIII. *Wound produced by a stone thrown from a distance.*—On March 21, J. O'B., 30 years, was seen with a wound situated on the left side of the brow, completely severing the tissues to the skull. The edges of the wound were inverted, but there was no bruising on either side of the wound. When the edges were opened out, they seemed at a distance to be finely cut, but, when looked at narrowly, there was a slight roughness on their margins. The outline was straight. This wound was produced by a stone, which, however, was not seen by me, and consequently its shape cannot be described. The person who was seen to throw the stone stood at a distance of ten yards from the one who was struck.

Obs. LXIX. *Wound produced by piece of slate.*—On August 10, 1875, W. B., 12 years, was seen with a wound on the face below and at a right angle to the outer canthus of the left eye. It was half an inch in length, and penetrated the tissues to the bone. The edges of the wound were fine, and could not have been distinguished from an incision made with a sharp knife. The outline was straight. This wound was produced by a piece of slate thrown at him from a distance of about twenty feet. It was a thin, sharp-edged piece of slate that had a somewhat circular form. No portion of it was found in wound.

Obs. LXX. *Gunshot wound—lips, mouth, tongue, teeth, jaws.*—On April 24, 1875, W. B., 20 years of age, was brought to the Police Station, supposed to have been shot. There was a circular blackened wound, penetrating the cheek on the left side of the face, the outer portion of the circle including the angle formed by the junction of the lips. The furthest back incisor, the canine, and the pre-

molar were wanting on the left side of the lower jaw—portions of their stumps being found in the remains of their sockets. On the left side of the upper jaw the left canine was wanting, and a portion of the jaw was carried away; a hole formed partly by the cavity for the stump, and partly by loss of the bone, was seen to admit the probe for fully an inch. The tongue was deeply furrowed in an oblique direction from before backward, and from left to right from a point opposite the left canine to near the anterior molar on the right side of the jaw. On the right side of the upper jaw, opposite the molars, but above them towards the roof of the mouth, was a wound, about an inch in length, which raised the tissues in a flap and exposed the bone, which was crushed and fractured to a slight extent. In this wound were found portions of teeth which consequently must have been carried from the left side of the mouth, as there were no teeth broken on the right side of the jaw. On examining the face a slight prominence was detected near the inner canthus of the left eye. This prominence was in the form of a hardened ridge, and when minutely felt had the shape of the root of a canine tooth. The probe was then introduced into the remains of the socket of the upper canine, and its progress was at first impeded by a layer of bone, but by a little force it was sent beyond into a groove in the upper jaw, which led to the portion of the stump firmly embedded in the groove which it had evidently made for itself. This portion was with some difficulty moved downward, and it was then found to be broken into several fragments which had been kept compact while in its groove. The bullet was alleged by bystanders to have been spat out of the mouth immediately after the shot had been received, and a bullet was brought which was stated to have been the one spat out by him. It was bruised, but still retained a slightly rounded form, with irregularities here and there, and with loss of substance. The interstices of these irregularities were filled with sawdust, after the careful removal of which, by placing the bullet in a little water and so floating off the sawdust, six small

fragments of enamel and dentine were discovered surrounded more or less by blood. There was likewise blood corpuscles in the fluid which remained after floating off the sawdust. These characters were sufficient to identify the bullet, and to prevent any useless search for it in the body. He had received the shot while standing at a shooting saloon. A man behind whom he stood was firing at the target, but finding the trigger stiff, and wanting to find out the cause, threw the loaded piece over his arm with the muzzle pointing backward, when it went off, and the charge lodged in the mouth of the man who was about a yard distant. The wound on the lips was filled with small grains of unexploded powder, which gave it a blackened appearance. The mouth must have been shut at the time the shot was received, as both the lower and upper jaws suffered, and when the mouth was closed the wounded aperture assumed an irregularly circular form. The direction in which the shot was fired might have been determined by the course of the wound in the mouth, and by the lodgment of the broken teeth in the right jaw.

Obs. LXXI. *Wound behind ear—origin (?)—evidence in Court.* — On July 3, A. F. was seen with a wound situated at the back of the left ear, which was scarcely quarter of an inch externally, but which penetrated the tissues in an oblique direction, backward and downward, to the length of two inches, laying bare the skull about midway in its course, and then being deflected along the bone to the termination of the wound. The edges of the wound externally were fine and keenly cut.

It was alleged that it had been produced by a knife, but for the defence it was asserted that he had been struck by a stone thrown by a boy at some distance, as at the time of the alleged assault a number of boys in the neighbourhood were engaged in stoning one another, and that this had merely been a stray stone which struck and produced this wound. It was clearly proved for the prosecution that the man was struck in the locality of the wound by the prisoner, but no one saw what was in the prisoner's hand at the time.

The position that the assaulted person stood relatively to the boys who were throwing stones was asked, and it was stated that he stood with his back toward them.

The evidence at the Sheriff Court was to the effect that, judging from the wound, the instrument, whatever it might have been, must have been at least two inches in length, a quarter of an inch in breadth, not very thick, and have had comparatively sharp edges. Its consistence would be firm, as it had penetrated the tissues for some depth, and had impinged against, and was deflected along, the skull without having left any trace in the wound of its having been broken. It further could not have been produced by anything having been thrown from behind the head, as the wound was directed from before backward.

## REMARKS.

Details are given in the foregoing of seventy-one cases, and one hundred and four wounds, produced by fifty-one different kinds of articles. Judging from the nature of these articles, they seem to be such as have come most readily to hand, and a glance at the following table will show that not the least among them are culinary and household utensils.

There are two columns in the first table, the cases being divided according as the instruments which produced them were sharp or blunt, and not with regard to these qualities in the wounds themselves.

I. *Tabular enumeration of the articles which produced the wounds, along with the number of wounds produced by each article.*

BLUNT.		SHARP.	
Kind.	Number of Wounds.	Kind.	Number of Wounds.
Fall on pavement ...	4	Knife, hatchet ...	2
„ curb stone ...	1	„ carving .. ...	1
„ corner of house ...	1	„ table ... ...	2
„ edge of step ...	1	„ clasp—single-edged, pointed ...	1
„ edge of hold of ship ...	1	„ pocket—large blade ...	1
Blow with naked fist ...	3	„ pocket—small blade ...	1
„ by falling box ...	1	„ shoemaker's ...	2
„ with heel of boot ...	1		
<hr/>		<hr/>	
8	Carried forward, 13	7	Carried forward, 10



BLUNT.		SHARP.	
Kind.	Number of Wounds.	Kind.	Number of Wounds.
8	Brought forward, 13	7	Brought forward, 10
Blow	with toe of boot ... 2	Knife, ham ...	... 1
"	with hearth brush 1	Rounded conical instru-	ments ... 8
"	with wooden beetle 1	Dagger ...	... 1
"	with wooden roller 1	Razor ...	... 1
"	with policeman's	Fork ...	... 3
"	baton ... 3	Hair pin ...	... 1
"	with hazel stick 1	Glass—hand thrust through	window ... 10
"	with handle of	against mirror 1	
"	hatchet ... 2	" fall through glass roof 1	
"	with tin can ... 1	" fall of glass from roof 1	
"	by lamp post ... 1	" blow by glass jug 1	
"	by broken cast-iron	Crystal ...	... 3
"	gutter ... 2	Earthenware & porcelain jug 3	
"	with hammer ... 1	" basin ...	3
"	with iron file ... 3	" <i>pot de chambre</i> 2	
"	with iron bar ... 3	Stone ..	... 1
"	with tongs ... 1	Slate ...	... 1
"	with policeman's	Gun shot ...	... 1
"	whistle ... 2	Doubtful ...	... 1
"	with poker ... 10		
"	with blunt hatchet 2		
<hr/>	<hr/>	<hr/>	<hr/>
25	50	26	54

It will be observed from the foregoing that many wounds on the scalp which have been produced by blunt instruments have been characterised by straight, clean, sharp edges, and in this respect could not have been distinguished from wounds produced by sharp-cutting instruments. Such a result would be little expected at first, but its consistence will appear on consideration. The scalp may be described for the present purpose as a tense, firm membrane, stretched over a hard, dense, unyielding surface; consequently, anything which strikes this tense membrane with sufficient force may burst it. This bursting may assume various forms, and it not uncommonly assumes that of a split, with sharp, clean edges. An ordinary cricket ball, made of a layer of india rubber, enclosing a solid core of wood, gives an approximate idea, and many times these india rubber coverings are burst by forcible contact with the flat surface of the bat, and when split the edges are often so sharp and keen that they could not be made finer by an instrument of the greatest sharpness. That both the head and the ball, in the majority of cases, exhibit irregular outlines in the bursts produced

by contact with flat surfaces, is no doubt the case ; but in a proportion of cases, sufficient to make it not uncommon, the wounds and splits have been found as above described. When the instrument is round, such as a stick, or, typically, a ruler, it will impinge against the scalp by a very narrow straight band, sufficient, in many cases, to constitute of itself a straight sharp-edged split. Many pokers, sticks, rollers, &c., are of this order. So that when the tensivity of the scalp, the underlying resisting surface, and the character of many of the blunt weapons are considered, the outlines and edges of the wounds will not be deemed incompatible when straight and sharp.

Hitherto the diagnosis between wounds produced by sharp-cutting and those produced by blunt instruments rested on the character of the outline and lips of the wound, as to whether the outline was straight, the lips clean and sharp, and the edges free from bruises, or the reverse. But from the foregoing facts it is seen that many wounds of the scalp, which have been produced by blunt instruments, have been characterised by straight, clean, sharp edges, and in this respect could not have been distinguished from wounds produced by sharp-cutting instruments. Consequently, the former points of diagnosis are shown to be fallacious, and in face of the above facts it would be impossible to determine by the former diagnosis alone whether a given wound, with straight and sharp edges, had been produced by a sharp-cutting or by a blunt instrument.

The question then to be determined is, whether there be any other circumstances which would conduce to a positive diagnosis between wounds produced by blunt and those produced by sharp-cutting instruments.

In a number of the foregoing cases in which the wounds have been situated on the hairy scalp, it is noted that entire hair bulbs were observed on the section. These were detected when the wound was very minutely examined. Sometimes the naked eye was assisted by the lens in the first instance, for the purpose of detecting any hair bulbs which might be protruding from the section, but once detected they

were easily discernible to the naked eye. These entire hair bulbs sometimes projected from the surface of the section in little bundles interspersed here and there, as if they had been exposed by the recedence of the opposite lip of the wound. Sometimes they were seen isolated, one here and another there. When the wound penetrated at an angle to the axis of the hair, the hair bulbs were then found to project further across the wound, and were more easily seen. When these hair bulbs were seen it was always in wounds which were produced by blunt instruments. A sharp-cutting instrument would not have left them thus exposed, but would have divided them in its passage through the tissues.

So that when a wound exhibits entire hair bulbs protruding from the surface of its section, it may be concluded that that wound was the product of a blunt instrument.

In some other cases minute filaments were seen stretching from opposite sides of the section. On close inspection, aided by the lens, these filaments appeared in some cases to consist of nervelets, and in others of minute blood vessels. Sometimes their size was sufficient to render them at once apparent, but they were generally so diminutive that they might easily have been overlooked, and so slender that any abrupt separation of the lips might have severed them.

The best way to discover their presence is by gently separating the lips of the wound and freeing its interior from blood by a stream of clean cold water. Sometimes a little blood adheres to these filaments and may obscure them, but the stream of water, properly directed, is sufficient to clear this away in most instances; when this does not suffice a little manipulation is all that is necessary. They will be seen then to stretch across from one side of the wound to the other towards the middle of the thickness of the section, and be free from the tissues both above and below. In some of the wounds presenting this appearance the periosteum was seen to be divided very keenly. Though the surrounding tissues have suffered a solution of continuity, these filaments still preserve their continuity. When the lips of the wound

are approximated they lie against the surfaces, become obscured by blood, and are scarcely recognizable.

The observer must be careful not to confuse this appearance with a small fibril which, though really severed, may yet be adherent to the opposite surface so as to bridge the wound, or with a small coagulum which may assume the form of a thread stretching from one surface to the other. Often, too, the surface of the section presents blood vessels, which, though divided, have been more or less stretched during the production of the wound, and the divided ends are seen protruding and hanging from the surface of the section. These must also be distinguished from the minute blood vessels and nerves lying on the floor of the wound which have preserved their continuity: though they are most often found in wounds produced by non-penetrating instruments, yet they may ensue from the passage through the tissues of a penetrating instrument with blunt edges, which would push aside rather than cut the vessels.

It may be safely stated then that, when a wound presents nerve filaments or minute blood vessels, which have retained their continuity and bridge the wound toward the middle of the depth of the section, while the tissues have receded all round them, below as well as above, that that wound was produced by a blunt non-penetrating instrument.

Again, in some of the foregoing wounds it was seen that the outline agreed with the shape of some ridge in the immediate vicinity. The wound was not in all instances directly over this ridge, yet it could be brought over it by moving the skin to one side or other, and generally there was a communication existing between the external wound and the underlying ridge, though not always. A blunt instrument might strike against the tissues beyond the ridge, and carry the skin along with it till it impinged against the ridge. On the removal of the instrument the tissues would recover their position, and thus a valved wound would be produced. It is interesting to find the skin in some instances finely divided, and yet the cellular tissue underneath presenting an irregular division,

as if it were separated into meshes and then filled with blood; especially so when the actual cutting edge was on the inside, though the force was applied from without. In one instance a wound, corresponding in outline to the supra-orbital ridge, portrayed the outline so well that it indicated the supra-orbital notch.

While any sharp angular ridge may produce clean cuts in the tissues when they are forcibly driven against it, the ridges most often implicated are the superior and inferior orbital. The wounds produced by forcible impact with these are generally very fine keen cuts, though sometimes they are accompanied by sufficient bruising to indicate their origin. Next to these in frequency comes the temporal ridge of the frontal, and then probably the inferior edge of the malar bone, the latter often producing deep cuts when the face has been kicked, though when a boot has been used it is difficult to determine whether the cut is due to the sharp toe or the edge of the bone, although the wounds assume the form of the latter. The zygomatic process, the superciliary eminences when prominent, and the inferior margin of the lower jaw are also frequent seats of such cuts. The degree or angularity of the ridges varies greatly in different people, and the wounds in their vicinity will vary accordingly.

So that when a wound, even with sharp, well defined edges, bears in contour a resemblance to an osseous ridge in close proximity, it is *probable* that it was produced by a blunt non-penetrating instrument.

It will be observed that the same instrument used by the same person in delivering several successive blows, may produce wounds of different characters. In the two wounds produced by the same person with the hatchet, the wound on the head bore evidence of its having been produced by a blunt instrument, while the wound on the soft tissues of the arm had the characters of a wound caused by a comparatively sharp one. Again, the external wounds produced by a single blow of a knife, which entered the face near the chin, and had its exit in the neck, the axis of the two ex-

ternal openings were situated differently, the one being placed at a considerable angle to that of the other; so much so that on looking at the two wounds at first it was thought that they were distinct, though it was afterwards seen that they were only the external openings of the one wound. The form assumed by these incisions would no doubt be due, in part, to the different directions in which the skin was stretched in the various regions. In several instances the wound presented some peculiarity that corresponded with the individual instrument which produced it, and on comparing the wound with the instrument this was at once detected. This was well illustrated by case XXXV., in which the scalp wound corresponded in outline to a peculiar tortuosity existing on the poker which produced the wound; and somewhat less so in case XXVI., where two straight wounds that tapered toward one another at one extremity formed an exact pattern to a flat tapering file, whose apex was wanting, and which when placed lay exactly between the wounds. In case XXIX. a probable explanation of the Y-shaped wound, produced by a single blow with a pair of tongs, may be found in the supposition that when the stroke was delivered the tongs were being closed, but coming in contact with the tissues before this was accomplished, the first part of the wound was made, and the straight line after they were shut.

The stellate-shaped wound given in case III., and an irregular-shaped wound shown in case VI., presented good specimens of many wounds produced by blunt instruments, especially by contact with flat surfaces. Falls on the street on the back of the head often cause these wounds, and indeed many habitual drunkards are decorated with this indelible cicatricial star which they wear on their crown.

A body having a blunt narrow edge sometimes drives a small portion of scalp before it, detaching it from the adjacent tissues and leaving it depressed as is seen in case VII. The depressed portion of the wound would here give some indication of the breadth of the edge of the instrument.

Foreign matter was only found in one of the wounds produced by blunt instruments, and that was in a wound produced by a fall on the pavement, which was impregnated with sand.

It will be noticed that most of the wounds by blunt instruments have penetrated the tissues to the skull, and it may be said from general observation, as well as from the present study, that wounds on the scalp which have sharp, clean edges, and are produced by blunt instruments, generally penetrate the tissues to the skull—at least to the periosteum. When wounds produced by blunt instruments do not penetrate the entire thickness of the scalp, the edges are generally more or less bruised and tumefied. The converse is also probable; a wound with sharp clean edges which does not penetrate the tissues to the skull, but stops short in the scalp, is generally the product of a sharp instrument.

Although in these cases it has not been noted individually, yet it has been generally observed, and the observation may be taken as a general rule, though one upon which too much dependence is not to be placed, that wounds on the scalp which have sharp, clearly-defined edges, and which are produced by blunt instruments, generally *gape* much more than similar wounds produced by sharp instruments. And further, in many scalp wounds produced by blunt instruments, and bearing the above characters as to outline and edge, it is found that the scalp is undermined on either or both sides of the incision, which is seldom the case in wounds resulting from direct blows by knives, unless when they enter the tissues obliquely, or glance along the surface of the bone.

The gunshot wound is given principally for comparison with the others, as it forms a decided contrast.

II. Table showing the character of the edges of the wounds produced by blunt instruments, according as they are fine, comparatively fine, or blunt.

## EDGES.

FINE.		COMPARATIVELY FINE.		BLUNT.	
Kind.	No. of Wounds.	Kind.	No. of Wounds.	Kind.	No. of Wounds.
Fist ...	3	Pavement ...	1	Pavement ...	2
Stair ...	1	Street (curb-stone) ...	1	House (corner of) ...	1
Pavement ...	1	Kick ...	1	Hammer ...	1
Hold, ship ...	1	Beetle ...	1	Box (fall of) ...	1
Keel of boat ...	1	Iron bar ...	3	Tongs ...	1
Kick, boot ...	1	Poker ...	6	Hatchet ...	1
Brush ...	1	Policeman's baton ...	2	File ...	1
Wooden handle		Hatchet ...	1		
hatchet ...	2	Tin can ...	1		
File ...	2				
P. whistle ...	2				
Lamp post ...	1				
Cast iron gutter	2				
Poker ...	4				
P. baton ...	1				
Roller ...	1				
Stick ...	1				
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
17	25	9	17	7	8

III. Table showing the character of the outline of wounds produced by blunt instruments according as they are straight, irregular, angular, curved.

## OUTLINE.

STRAIGHT.		ANGULAR.		CURVED.		IRREGULAR.	
Kind.	No. of Wounds.	Kind.	No. of Wounds.	Kind.	No. of Wounds.	Kind.	No. of Wounds.
Pavement ...	1	Stair ...	1	Fist ...	3	Pavement ...	2
Hold of vessel	1	File ...	2	Street ...	1	House corner	1
Kick ...	1	Roller ...	1	Pavement	1	Hammer ...	1
Beetle ...	1			Heel of boot	1	Box ...	1
Brush ...	1			Kick...	1	Tongs ...	1
Iron bar ...	3			Policeman's		Poker ...	5
P. whistle ...	2			baton ...	2		
Lamp post ...	1			File, spike of	1		
Poker ...	5						
P. baton ...	1						
Hatchet ...	2						
Cast iron gutter	2						
Stick ...	1						
Handle, hatchet	2						
Can, tin ...	1						
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
15	25	3	4	7	10	6	11



IV.—*Table of wounds from blunt instruments, divided into three columns. The first column shows the number of wounds which exhibited entire hair bulbs in their section; the second shows the number of wounds in which nerve filaments or twigs of blood vessels were found bridging over from one lip to the other; the third enumerates the wounds which corresponded in shape, &c., with the bony ridge in their immediate vicinity.*

ENTIRE HAIR BULBS IN SECTION.		NERVE FILAMENTS, TWIGS OF BLOOD VESSELS, &c., BETWEEN LIPS.		WOUNDS CORRESPONDING TO RIDGES IN VICINITY.	
Kind.	Wounds.	Kind.	No. of Wounds.	Kind.	No. of Wounds.
Baton ... ..	1	Roller ... ..	1	Baton ... ..	2
Stick ... ..	1	Beetle ... ..	1	Kick ... ..	2
Poker ... ..	4	Brush ... ..	1	Pavement ...	1
Iron bar ... ..	3	Boot .. ...	1	Fist ... ..	3
Tin can ... ..	1	Fall on stair ...	1	Street ... ..	1
Hammer ... ..	1	Handle, hatchet	1	Handle, hatchet	1
Fall against hold of ship... ..	1				
Fall on pavement	2				
Cast iron gutter	1				
9	15	6	6	6	10

The wounds produced by blunt instruments have been arranged according to the character of their edges and their outline. The edges are divided into fine, comparatively fine, and blunt. It is seen that twenty-five are stated to have fine edges, seventeen comparatively fine, and eight blunt. The various articles which produced them are also given, and among these wounds tabulated as fine there are corresponding to them many instruments which are blunt indeed. The outline is divided into straight, angular, curved, irregular. Twenty-five are tabulated as straight, four angular, ten curved, eleven irregular. If the angular be added to the straight, because both sides of the angles formed straight wounds, and those curved ones, whose shape was determined by underlying osseous ridges, be deducted, then that leaves forty wounds, of which twenty-nine are straight, and eleven are irregular.

A fourth table shows the number of wounds in which entire hair bulbs were found, and these are reckoned at 15; the

number of wounds exhibiting nerve filaments, &c., as 6; and the number of wounds corresponding to the various ridges in their vicinity as 10, which, taken collectively, are 31 out of the total 50 wounds produced by blunt instruments. Taking the first two items together, that gives 21 wounds out of 50 in which a positive diagnosis might be arrived at as to their being produced by a blunt non-penetrating instrument; and if the ten last be added, in which a highly probable diagnosis could be given, that gives 31 wounds out of 50 in which a diagnosis of a blunt instrument has been arrived at from these three points alone.

But seven may be added as being diagnosed on account of their bluntness and bruising, thus giving 38 wounds out of 50 produced by blunt instruments which presented characters sufficient to ensure a diagnosis between a blunt and a sharp-penetrating weapon.

The remaining twelve wounds did not present characters which were sufficient to have justified a positive diagnosis of the kind of instrument which produced them.

If difficulty has been experienced in deciding whether a given wound has been produced by a blunt or a sharp instrument, it will not be surprising to find that still greater difficulty exists in determining the kind of sharp instrument which may have been used. Even limiting the question, which is one of the greatest importance, whether the wound was produced by a knife or other sharp substance such as glass, does not in many instances mitigate the difficulty. Irregularity of outline is advanced as a distinguishing feature between wounds produced by earthenware, or glass and knives, but this is no criterion, for irregularity in outline is often found in wounds caused by knives. On the other hand, though many wounds made by glass or earthenware are irregular, yet there are not a few characterized by straight outlines. As to the edges, as far as the degree of sharpness is concerned, probably the glass and earthenware would bear the palm in producing the keenest cuts. For the purpose of determining the character of the outline and edges presented by various wounds in the foregoing cases, the following tables were framed.

V.—Table showing the character of the edges of the wounds produced by sharp instruments, according as they are fine, comparatively fine, or blunt.

## EDGES.

FINE.		COMPARATIVELY FINE.		BLUNT.
Kind.	No. of Wounds.	Kind.	No. of Wounds.	
Porcelain ...	3	Pocket knife ...	1	
Earthenware ...	5	Clasp knife ...	1	
Stone ...	1	Stone ...	1	
Crystal ...	3	Dagger ...	1	
Glass ...	1	Round conical inst.	8	
Razor ...	1			
Hand knife ...	1			
Shoemaker's knife	2			
Carving knife ...	1			
Table knife ...	3			
Hatchet ...	2			
<hr/>	<hr/>	<hr/>	<hr/>	
11	3	5	12	

VI.—Table showing the character of the outline of wounds produced by sharp instruments, according as they are straight, angular, curved, or irregular.

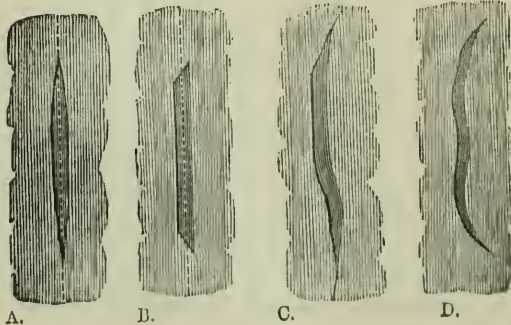
## OUTLINE.

STRAIGHT.		ANGULAR.		CURVED.		IRREGULAR.	
Kind.	No. of Wnds.	Kind.	No. of Wnds.	Kind.	No. of Wnds.	Kind.	No. of Wnds.
Porcelain ...	3	Glass from roof	1	Hand thrust		Mirror ...	1
Earthenware...	5			through win-		Penknife ...	1
Stone ...	1			dow ...	1	Shoemaker's	1
Slate ...	1					knife ...	
Crystal ...	3					Table knife	1
Glass ...	11						
Razor ...	1						
Dagger ...	1						
Ham knife ...	1						
Shoemaker's							
knife ...	1						
Pocket knife...	1						
Clasp knife ...	1						
Table knife ...	1						
Round conical							
instruments	8						
Carving knife	1						
Hatchet...	2						
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
13	42	1	1	1	1	4	4

In these it is shown that out of 48 wounds produced by various substances, 36 had fine edges, 12 compara-

tively fine, and not one presented a blunt edge. Of the 36 possessing fine edges, 10 belonged to instruments of the knife kind, and 26 to substances such as earthenware and glass. Of the 12 having comparatively fine edges, 11 belonged to instruments of the knife and stiletto description, and one to a stone. In the table demonstrating the character of the outline, there are 42 under the heading of straight, one angular, one curved, and four irregular. Of these designated straight, 16 belong to the knife and stiletto kind, and 24 to glass, &c.; the angular and curved are both of glass; while the irregular denotes one to glass, and three to knives, so that little or nothing can be determined on this point by irregularity of the outline, and by sharpness of the edges, or the reverse. In some particular wounds, however, though the outline be straight, and the edges sharp and keen, the terminations of the wound are not exactly in the centre, but more toward one side. This is well illustrated in case LIII., and it is not by any means an uncommon form for such wounds to assume. (*See Fig. 5, B.*) Where this peculiar appearance is found, it would be justifiable to conclude that in all probability a knife did not produce it, and that it was likely to have been made with glass or earthenware. In case LVI., where an irregular outline was produced in a wound caused by a broken mirror, the irregularity will compare favourably with case XLIII. in which the wound was produced by a small penknife. (*See Fig. 5, C. D.*)

FIG. 5.



Mechanical representation showing:

A. Wound, in outline, whose sides converge toward one another at either extremity and which meet in the middle line.

B. Wound, in outline, having unequal sides, and whose extremities are not in the middle line. (*See Obs. LII.*)

C. Outline of wound produced by broken mirror. (*See Obs. LVI.*)

D. Outline of wound produced by penknife. (*See Obs. XLIII.*)

In some cases, as when the arm is thrust through a pane of glass, besides the prominent wound there are a number of small sharp cuts about the knuckles and wrists, which will of themselves indicate the probable origin. Where a wound is suspected to have been produced by such a cause, search should be made for any such small cuts, as they may facilitate the solution. It must be clearly understood at the same time that this is not an absolute sign.

When a vessel of glass or earthenware is used as a weapon and breaks, producing several wounds as it does so, these wounds may be looked to as varying one from another according to the form of the fractured portions. In the case of the porcelain jug there was one keen edged straight wound, and two others comparatively blunt.

As to material remaining in wounds produced by such articles as glass and earthenware, it is not so often found as is generally supposed. All of the foregoing wounds were examined carefully for foreign matter, and in only one of the wounds produced by sharp instruments was there any foreign material found; and that fragment of earthenware was in such a position as might easily be overlooked—embedded in a furrow which it had made in the skull. It would not be right to conclude that foreign matter is only found as a rule in one out of forty-one wounds produced by sharp instruments of miscellaneous character; nor only one out of forty-four cases of wounds produced by various blunt instruments, for although this result has been obtained from these 104 wounds, yet my general experience would indicate a much higher percentage.

When a wound, situated on the hairy portion of the scalp, is supposed to be inflicted by a sharp instrument, care should be taken to examine the hair in the immediate vicinity of the wound for cut hairs lying among their fellows, and if none are found, the wound itself should be inspected, as it sometimes retains them after they had been cut and imbedded. See cases XXXVIII. and XLIII., illustrative of this. If hairs were found cut, it would be indicative of the use of a sharp instrument. It would be understood that the

hairs to be of any service in the diagnosis must be *cut*, and not simply hairs torn out by the root, which are often found when a struggle has taken place previous to the infliction of the wound. In one instance the lens detected several cut hair bulbs in the section of a wound produced by a sharp instrument. In no case, where a sharp penetrating instrument was used, were there any free entire hair bulbs detected in the wound. The correspondence of the wounds caused by forks and hair-pins to the instruments which produced them, requires only attention to be directed to it.

The wounds referred to in case L., which were produced by rounded conical instruments, so far confirm the observations of M. Filhos concerning wounds produced by a rounded conical stiletto. They agreed with these observations in two particulars. As they lay without being disturbed they presented appearances similar to those which would have ensued from a flattened instrument with sharp edges; and, secondly, all the wounds had their axis lying in the same direction. But they also differed from the results obtained by M. Filhos in two points: first, the axis of these wounds did not lie longitudinally, as he states they do in the limbs, but transversely; and secondly, when the skin was put on the stretch longitudinally the wounds assumed a circular form. As to the first of these differences it is possible that the abnormally relaxed state of the tissues on the hand due to the extensive laceration at the wrist might greatly alter the shape of the wounds.

When furrows are found in the skull they should be carefully examined for foreign bodies, as fragments often lodge in them, and are apt to be overlooked. Some might doubt that pieces of earthenware could furrow the hard osseous tissue, but this is not a rare occurrence. In two cases mentioned, fragments of earthenware were found imbedded in the skull, so that only a little roughness could be detected by the forefinger, though the probe at once elicited a difference of note between the skull and this fragment. The furrow was found to be over one eighth of an inch in depth. In a third instance a fragment of the leather lining the helmet of the man who was struck was driven into the wound, and imbedded in a furrow in the skull.

From the foregoing the following conclusions may more particularly be formulated :—

1. Blunt instruments sometimes produce scalp wounds having straight outlines and sharp clean edges, which in these respects could not be distinguished from wounds produced by sharp-cutting instruments.

2. Scalp wounds, which exhibit entire hair bulbs projecting from the surface of their sections, have been produced by a blunt instrument.

3. Wounds, exhibiting nerve filaments or minute blood-vessels bridging the interspace between the lips of the wound, toward the middle of the depth of the section, while the tissues have receded all round them below as well as above, have been produced by blunt non-penetrating instruments.

4. When a wound, even with sharp well-defined margins, bears in contour a resemblance to an osseous ridge in close proximity, there is a *probability* that it was produced by a blunt instrument through forcible impact against the underlying osseous ridge.

5. *Cut* hairs found in the immediate vicinity of a wound are valuable aids in determining whether a sharp or a blunt instrument has been made use of.

6. As to the diagnosis between wounds produced by instruments of the knife kind and other sharp-edged substances, such as glass, earthenware, &c., no dependence can be placed on the mere regularity of outline or sharpness of edge, or the reverse.

7. Sharp clearly-defined wounds in certain cases present peculiarities in their terminations which may be sufficient to enable a probable diagnosis as to whether they were produced by a knife or a portion of glass or earthenware.

8. The same instrument, used by the same person in delivering several successive blows, may produce wounds of different character.

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## VI.—HEPATIC COLIC FROM GALLSTONES, WITH RECURRENT JAUNDICE.

By WILLIAM SNEDDON, M.D., *Beith*.

MRS R. L. O., aged 31, had an attack of pain in the right side, on Saturday, June 20, 1874, but had felt out of sorts for about ten days before, during which time also the nursing of baby had become very oppressive. Was jaundiced on the following day, and continued so for ten days.

The pain returned on Monday, but she rose and took her porridge as usual. Stool was light coloured for three days, and urine was dark for about ten days.

Friday night, July 3, had another attack of pain, which was worse than the former ones, and continued about twelve hours. It was acutest for a few minutes before it ceased, and it disappeared suddenly; walking increased it. Was only jaundiced for about three days after this attack.

July 12. Had another attack of pain from 8 a.m. to 9 p.m., which was moderate in the afternoon, but turned worse at 7 p.m. Was jaundiced after this attack for two days. Baby was weaned after this attack. Appetite good, tongue clean and moist. Temperature in axilla, 97.75.

July 19. Had a slight attack from 1 to 3 p.m., but was not jaundiced after it. The pain was not confined to the side, but was as bad in back, stomach, and bowels. She experienced a dragging feeling in both mammæ, but especially in right.

After this attack there was observed in the stool a strange piece of something which looked like starch, but was found afterwards to be thick mucus.

July 20. There was a slight attack of two hours' duration.

July 21. Had a threatening from about 6 p.m., but the attack did not commence till 10 p.m., and continued till 3 a.m. This attack was the acutest she had yet had, and she was jaundiced after it for four days. Felt sick, and vomited for the first time just before the pain went away.

She was much weaker after this attack, and did not get out of bed for more than a week.



There was more mucus seen now in the stools.

August 10. Had a slight attack from 2 a.m. to 4 p.m.

September 4. Had another attack which came on while driving in a dog cart, and it continued from 3 to 7 p.m.

She had been at Glasgow on the previous day taking the advice of a consultant.

September 5. Had another attack this morning for two hours; then after dinner had another for three hours.

September 6. Had an attack of about two hours' duration. Was jaundiced after the attack on the 4th, and was so till the 7th.

September 20. Was pained in the afternoon for about two hours.

September 21. Had an attack from 11 a.m. to 2 p.m., and was sick and vomited three times, this being the second occasion on which she has vomited. Was very weak after this, and took longer to rally.

October 9. Had a short attack to-night, but was not jaundiced, neither was stool or urine affected.

October 13. Had a very short attack to-day after dinner.

October 18. Had a slight attack of an hour's duration, after being tired out through putting children's clothes on.

November 2. Had a slight attack to-day of two hours' length.

November 17. Was pained for an hour in the forenoon, an attack threatened in the afternoon, but did not actually begin till 7 p.m., when it continued two hours.

November 18. Had an hour's attack after breakfast, and had another of two hours' length after two.

November 19. Had an attack which began after breakfast and continued till the afternoon. The pain was worse during this attack than it had been since July 2. Was jaundiced, and continued so for three days. There was a great quantity of mucus passed after this attack, especially in one of the stools.

November 21. Had a very short attack to-night.

December 1. Had another attack to-night, but the pain was *slight*. I had told her husband the previous day to get a sieve, so that we might pass the alvine contents through it

for a day or so after each attack, and was both pleased and satisfied to find a stone in the first discharge.

December 4. Had a shorter but more painful attack than the last one, about 10 p.m.; and next morning we found another stone.

December 11. Had pain in side from 10 a.m. till 12 noon, which then abated till 1.30 p.m., and began again in stomach, and continued for three hours. After the pain passed off, she had a general uneasiness all over the right side and stomach. Urine was high in colour, and stool was light, but we did not find a stone. She had a threatening the previous day, but it passed off after she took Friedrichshall water. She took Revelenta Arabica to-day, and it has been observed that she has had an attack of pain always after taking it, but it was recommended under the advice of another consultant who saw her. The stool she had on the following morning was examined in my presence in the forenoon, and we got a stone which was larger than the previous two. Urine still high coloured, and stool clayey. Felt a little dragging pain in the right mamma this forenoon between 10 and 11.30 a.m. She took a little whisky, but thought it caused acidity. Noticed a large piece of mucus, which was always increased after each attack.

December 24. Had a short and slight attack to-day. On the following morning, when the stool was examined, a small stone was found.

December 30. Was slightly pained; and on the following morning we found another stone, which was the smallest passed, and which was the last so far as is known.

My opinion at first was that there was biliary obstruction from some cause or other, which I could not for certainty determine. At a subsequent period I had a suspicion of organic disease of liver, for her family history is a remarkable one from the number of her friends who have died of cancer. After several attacks she attributed them to certain articles of diet she had taken previously, and so after a time she excluded a large number of the most nutritious articles of diet. Before her illness she weighed about 10 stones 6 lbs.

October 31st she weighed 7 stones 3 lbs. She commenced about this time to take her usual diet, with the exception of solid butcher meat and fats of all kinds.

November 14.	She weighed 7 stones 6½ lbs.
December 12.	” 7 ” 4 ”
” 26.	” 7 ” 9 ”
January 9.	” 8 ” 0 ”
” 25.	” 8 ” 5 ”
April 27.	” 9 ” 6 ”

She has not been weighed since last date, but she looks as stout as ever. She is *enciente*. I am of opinion that the decrease in weight was as much due to refusing to take certain articles of diet as to the mal-assimilation of food. Her liver was never enlarged, nor was her temperature increased any time that I examined it.

As to treatment, I gave her the following mixture, at first for a short time :—

℞.	Magnesiae fluidæ	ʒij.
	Spt. amm. aromat.	ʒiij.
	Tinct. rhei. co.	ʒj.
	Aquæ ad.	vijj.

Sig.

Sumat ʒss. ter in die.

The following she took when she had a spasm :—

℞.	Ether. chloric.
	Liq. morph. muriats āā ʒss.
	Aquæ ad. ... .. ʒij.

Sig.

Sumat ʒj. hora tertia, donec dolor exulaverit.

As a rule she felt much easier after taking the above anti-spasmodic mixture ; in fact, in my experience I don't know a better mixture not only in this, but in spasms of all kinds in the abdominal organs. The chloroform was not given for its supposed solvent effect on gall stones.

She sometimes took a little whisky instead, and it had a good effect at first, but afterwards had little or none. When-

ever the bowels were confined the attacks became more frequent, so she had to take Gregory's mixture or fluid magnesia pretty regularly.

After taking these a short time I ordered her to take a little Friedrichshall water every alternate morning before taking any food, and she derived more benefit from it than any other thing. She still takes it occasionally.

Hot applications were kept constantly on her side when the pain was present as well as occasionally when there was no pain. She put her feet in hot water, too, and twice when she had an opportunity, being on a visit where there was a bath, she took a warm bath.

She got a nitro-muriatic acid mixture and liq. cinchonæ from the physician she consulted about September 3, but the acid mixture frequently pained her. Her appetite was not good from about this time, but the liq. cinchonæ had no good effect. It was continued a month. About the beginning of November she got pepsina porci, and afterwards pancreatic emulsion, but neither seemed to produce any good effect.

The first stone which was passed resembled a grain of Indian corn in shape and appearance. It had a golden yellow colour, was smooth and glistening, and was faceted. It had a greasy, slippery feel, which was probably one reason that the pain was not so excruciating as in some cases where the stones are rough. The stones were all much alike in shape, but the third one was the largest, and the last two were smaller than the first two. The stones, after having been kept for nine months, have lost the glistening, yellow appearance in some parts, and have assumed a dirty, grey, dull hue. One of the stones on section had a deep black, tarry colour in centre.

I am of opinion, reasoning from the fact that we got a stone after every attack of pain, after we took the precaution to use a sieve, that she must have passed about thirty stones.

This case seems to corroborate the opinion of Trousseau, that their size is in inverse ratio to their number.

Further, I think that some of those stones which I presume to have been passed before using the sieve were much larger

than those we got, for the attacks were often long, and twice or three times the pain was very acute.

The heaviest which we got was about three grains, but then it must be remembered that gall stones are very light, for when I put one in water, after having kept it for nine months, it floated. Before using the sieve I looked at the stool daily to see if I could see a stone, but at the time you should find them the urine is so dark in colour that it is quite impossible to see them, though they are lying apart from the solid alvine discharge. She was never subject to urinary gravel, nor is she of a gouty diathesis. I may, however, remark that I detected blood in the urine about the beginning of November.

I believe that this disease is more prevalent than is generally supposed by the profession.

The patient has had no pain since December 30, and is now apparently well.

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VII.—ON THE ÆTIOLOGY OF EAR DISEASE IN GENERAL: A CONTRIBUTION TO THE PRINCIPLES OF AURAL SURGERY.

By JAMES PATTERSON CASSELLS, M.D., M.R.C.S., Lond., F.F.P.S.G., *Surgeon to and Lecturer on Aural Surgery at the Glasgow Dispensary for Diseases of the Ear.*

*Read before the Glasgow Southern Medical Society, 18th November, 1875.*

THE almost constant occurrence of [disturbance of function in the diseases of the ear, gives some colour of excuse to those observers who regard all diseases of this organ as so many different forms of "deafness." A proper "scientific use of the imagination," together with ordinary clinical observation of the natural history of diseases of the ear, ought ere now to have shown them that such a view is as unphilosophic as it is ill founded, and that there must needs be a common principle of causation of these diseases, out of which all symptoms and tissue changes evolve themselves. It is this study of the phenomena of ear diseases that has retarded in no small degree the progress of aural

surgery: moreover, it explains, and to some extent justifies, the teaching and practice of those who direct all their efforts to the redress of abnormalities in the tissues of the organ, overlooking the fact, that underlying these changes are principles, the violation of which is really their cause. Till we recognise that all symptoms are the outcome of a common cause, and that they occur in somewhat regular sequency, and that tissue changes do not condition the nature of the functional disturbance, our study of ear disease must prove unsatisfactory, and our efforts at cure the result of accident rather than design.

The study of the natural history of ear affections leads irresistibly to the conclusion, that they have a common cause, and that there is a process of evolution in the structural changes and morbid actions arising out of it.

Before, however, stating the nature of this common cause, we advance the hypothesis that a certain degree of intra-labyrinthine tension is essential to perfect hearing. This hypothesis, and the theory of a common cause of ear disease based upon it, may be taken as illustrative of the legitimate use of the imagination in the investigation of a scientific question, but neither the one nor the other rest upon an imaginary basis; on the contrary, both are supported by facts well known and recognised; facts which, for the first time, receive a satisfactory interpretation by the aid of one or other of them. For instance, it may or may not be true that within the cochlea there is a structure (*membrana basilaris*), which is capable of responding to all the tones within the range of the organ (11 octaves). If it is true,\* it nevertheless remains to be explained, in the interests of aural surgery and therapeutics, why it is that, under certain conditions of the organ, the power of perceiving articulate sound is dulled or altogether lost, when there are good grounds to affirm that the cochlea and its contents are free from disease. Now, not only does the hypothesis just advanced explain this fact, but it enables one to explain in

\* It is hardly necessary to state that the hypothesis advanced by me does not affect the theory of the perception of sound propounded by Helmholtz.

a rational way the nature of some anomalies in the function of the organ of hearing, which hitherto have been perplexing to most observers; *e.g.*, "hearing better in a noise." To these, and others of equal interest, more particular reference will be made by and by.

What may be the normal degree of intra-labyrinthine pressure or tension cannot at present be determined with accuracy. Fortunately, this exactness is not necessary for practical purposes, for we know, upon good evidence, that its measure is the amount of the atmospheric pressure at the sea level upon the exterior surface of the membrana tympani, minus the opposing intra-tympanic air-pressure and the resistance of the tissues; that it cannot be greater than this is established by the experience of deep-sea divers and others, which shows that an increase of pressure, to the extent even of one atmosphere, suffices to impair the function of hearing. On the other hand, that it cannot be much less, is proved by the experiments which have been made on moderately-elevated parts of the earth's surface, with a result similar to that just stated. The fact, then, may be accepted, that with normal tissue and an atmosphere neither greater nor less in pressure than that at the sea level, the normal intra-labyrinthine tension is maintained, and with it, perfect perception of articulate sound.

The fact is not overlooked that a *healthy* ear, under extremes of air-pressure such as here referred to, is capable of accommodating itself to the altered circumstances in which it may be placed, so that, in fact, any disturbance of function is temporary, for, whether the surrounding air is denser or rarer, the accommodating apparatus of the organ in a state of health speedily adjusts the balance between the extra- and intra-tympanic pressure, and restores the normal tension within the inner ear. It may be inferred from this, that whenever the accommodating apparatus is, from whatever cause, incapable of accomplishing this adjustment, the disturbance of function will continue unrelieved, and also, that even with a normal air-pressure, if this part of the apparatus of hearing is incapable of maintaining the

normal relations just referred to, dulness or loss of hearing must follow.

The preceding hypothesis, and explanations above given, are preparatory for the statement, that the essential cause of all affections of the organ of hearing is the disturbance of the normal intra-labyrinthine tension. Not only do all the subjective symptoms of ear affections arise from this cause, but the objective tissue changes as well, are the outcome of it, evolved, so to speak, as a necessary consequence.\*

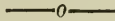
How this disturbance of tension is brought about demands for its explanation, that certain constitutional states which predispose to it be fully examined. If it can be shown that they are not only productive of ear disease, but only so by the intervention of a derangement of the accommodating apparatus of the organ, and following this, that the usually recognised symptoms and tissue changes ensue, our diagnosis of ear affections must become simplified, our prognosis exacter, and the principles of treatment more scientific, if not more successful, in their results than hitherto. This, however, is a subject too wide and important for the limits of this single communication, and as it is the one deemed necessary to establish the theory I have advanced, and to show that it is not the offspring of a "luxurious fancy and few facts," I propose to consider it fully on a future occasion.

\* Here I may remark that disturbance of intra-labyrinthine tension and impaired function and tissue change are co-relative to each other.

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## Reviews.



I.—A SYSTEM OF MIDWIFERY, INCLUDING THE DISEASES OF PREGNANCY AND THE PUERPERAL STATE. *By* WILLIAM LEISHMAN, M.D. Second Edition. Glasgow: James Maclehose. 1875.

THE author in the French play, whose works never appeared till the sixth edition, might have justified the sapient arrangement on the plea that he thus escaped the criticisms of the five unborn editions, and that his book was all the better therefor. In the multitude of critics there is not always wisdom; and we can imagine a writer, honestly desirous of profiting by the remarks of his reviewers, finding himself bewildered by their discordant diversity. In the case of such a work as that of Dr Leishman, the corrections, suggestions, and criticisms of all kinds, from all sources, must, in their effect on the author, be somewhat distracting—that is, if he read them. That Dr Leishman has read and profited by some of the reviews of his first edition, is evident enough, and, however much his critics may have differed from him, or from each other, it must have afforded honest gratification to him to find an almost unbroken consensus of opinion that, with all its faults, his book is the best work on midwifery in the English language. At the time it appeared it met a felt want, and its success was, therefore, immediate. Already it has been adopted as a text-book in the best medical schools of the country. The careful revision the author has given the work for the second edition will help still farther to extend the sphere of its usefulness. The efforts of the writer to this end have also been worthily seconded by the publisher, who has in this edition (which contains thirteen pages more than the last) reduced the price by one-fourth, and thus brought it down to the cost of a first-class student's manual.

The only part of the work which may be said to be rewritten is the section on puerperal fever. The great discussion on this subject in the London Obstetrical Society, in which, if we remember aright, Dr Leishman took some part, has evidently strongly impressed him in favour of the doctrine of septicæmic infection. In his account of the etiology of those rather obscure and diversified pathological conditions generalised under the name of puerperal fever, the author has accordingly given great prominence to this doc-

trine. In regard to other alterations, the preface notifies that they are to be found chiefly in the physiological section, and here Dr Leishman acknowledges his great obligations to his colleague, Professor Allen Thomson. We presume that Dr Thomson has revised this section, and it enhances the value of this part of the work that a gentleman whose attainments in this department are so well known, has put his *imprimatur* upon it. At the same time, a pretty careful collation of the first edition with the second enables us to say that the obligations so handsomely acknowledged are due not so much to corrections made, as for verifying the general accuracy of Dr Leishman's original description. The actual alterations are few in number, and refer chiefly to recent researches. The observations of Kindrat, made microscopically on women pregnant or menstruating at the time of death—to which we adverted in our review of Dr Leishman's first edition—are now described, and a few additions have been made in regard to the development of the ovum. But it says much for the care with which the chapters were originally written that, under Dr Thomson's scrutiny, so few alterations have been found necessary.

In the other parts of the work the changes are not very numerous. The odd mal-arrangement to which we formerly adverted, by which the description of the mammary glands had to be looked for in a chapter headed, "The Pelvis," has now been corrected. In the practical part of the work the author has found a difficulty in improving on himself, and here the book is substantially unaltered. Notwithstanding a fire of adverse criticism, and the position he took up in regard to the forceps, Dr Leishman still avows his proclivities for the straight forceps. In his admiration of this form of the instrument, Dr Leishman now stands pretty much alone in the front rank of British obstetricians. We are still of opinion that he has entirely failed to make out a good case, or in fact any case against the preferential arc of the pelvic curve, so strongly advocated by Barnes. We feel certain that longer experience will convince him of his error on this point. The work has an admirable index, which has been arranged by Dr G. P. Tennent.

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II.—ON CONCUSSION OF THE SPINE. *By* JOHN ERIC ERICHCSEN, *Surgeon to University College Hospital.* Longmans, Green & Co. 1875.

NEARLY ten years ago Mr Erichsen delivered to the students then attending the University College Hospital, London, six lectures, taking for his subject "Railway and other injuries of the Spine." These were shortly afterwards published, and the little thin book then offered to the profession formed the first contribution in this country to the literature of the subject. To these lectures were we indebted for some information regarding those obscure lesions of the spinal cord which so frequently formed subject of dispute before our Courts of Law; and we hailed with considerable pleasure the arrival of the new work on Concussion of the Spine.

From a perusal of the preface to the present volume, we learn that the six lectures attracted much attention at the time of their publication—that they were republished in America, and had a circulation in Germany, where we suppose railway collisions are not quite unknown. We have been, however, a little disappointed to find that, in the new book under a new name, there are the six old lectures slightly recast, and that throughout the eight additional lectures the recent and more extended experience of railway injuries gained by Mr Erichsen since the year 1866 has only enabled him to lay before the profession some six or seven new cases illustrative of injuries to the spinal cord, directly traceable to railway accidents. Surely in these days of collisions, of trials in court, and of large sums being awarded by way of compensation for injuries alleged to have been received, the experience of Mr Erichsen must be much more extended than his book indicates, and we would be slow to believe that any of his cases of "Railway Spine" and "nervous shock" were unsuitable for publication, on the ground of the rapid recovery of the patients on their claims for compensation being settled by the railway companies.

Of the fourteen lectures comprised in the book of 335 pages, the first six are devoted to the consideration of the symptoms which attend the different forms and degrees of concussion of the spine; two to its pathology; three to its complications; two to the medical aspects of the subject; and one to the treatment.

Mr Erichsen introduces his subject by quoting an observation made by Hippocrates to the effect that no injury to the head is too trifling to be despised, and he claims for the spinal column and its contents an equal amount of attention

and regard at the hands of the surgeon. His object, as he distinctly informs his readers, "is to direct attention to certain injuries of the spine that may arise from accidents that are often apparently slight, from shocks to the body generally as well as from blows inflicted directly upon the back; and to describe the train of progressive symptoms that lead up to the obscure, protracted, and often dangerous diseases of the spinal cord and its membranes that sooner or later are liable to supervene thereon;" and he points out that these injuries to the spine, though they are more frequently seen and are more severe in persons who have suffered in a railway collision, yet occur in the ordinary accidents of civil life. They constitute a class of injuries frequently the cause of litigation, and they tax the skill of the surgeon in separating the symptoms which are real from those which are purely imaginary. At the very outset the author clearly states that in speaking of shock to the nervous system arising from railway accidents he is not to be understood as claiming for them something different from the ordinary causes which produce shock in civil life. On the contrary, he holds that the cause only is special, and the results peculiar, but not essentially distinct and different. At the same time he thinks that the peculiarity of these obscure injuries of the nervous system, caused by railway shocks, is sufficiently great and important to warrant their being treated in a separate chapter in the great book of surgery.

Concussion of the spine is, according to Mr Erichsen, "a phrase adopted to indicate a certain state of the spinal cord, occasioned by external violence, a state that is independent of any obvious lesion of its protecting column or enveloping membranes, a condition that is supposed to depend upon a shake or a jar incurred by the cord, in consequence of which its intimate organic structure may be more or less deranged, and by which its functions are certainly greatly disturbed, so that various symptoms indicative of loss or modification of innervation are immediately or remotely induced, the primary effects being dependent upon molecular changes in the structure of the spinal cord, the secondary being either inflammatory, or such as interfere with its nutrition."

From the works of the older surgeons, Mr Erichsen has extracted numerous cases which go to prove what every surgeon knows who has had the experience of a mining district or the practice of a surgical hospital, namely, that severe blows and falls upon the back, twists of the neck

and spine, are sometimes followed by inflammatory affections of the cord or its membranes, by extravasation of blood within the spinal column, by the formation of abscesses at or near the bodies of the vertebræ, and that while many of the cases recover completely without any bad effects, whether immediate or remote, yet some few may terminate fatally sooner or later, or may only partially recover. The works, however, of these older surgeons teach a lesson other than that indicated by Mr Erichsen, and that lesson is that the proportion of cases in which serious or grave symptoms have followed injuries or sprains of the back, is very small indeed compared with the number of cases of injury to the spinal column, in which there were no remote or serious results. Is it not now well understood by the profession that cases of remote effects due to shock and concussion have greatly increased of late years, and that few cases of railway injuries now-a-days seem to be complete and perfect without them? It is a curious fact that railway servants, who are very much exposed to injuries, do not seem to suffer from the effects of shock to the spine when they are in collisions; when their backs suffer from contusion and sprains, serious results as a rule do not follow. In their spinal columns there is no deep-seated inflammation. The surgeon who attends them in private or in hospital has no fear of rigid vertebræ or spinal meningitis. It is only when passengers are injured that remote effects become popular—they, and apparently they only, become subject to myelitis, meningitis, and spinal anæmia.

The precise object Mr Erichsen has in view in bringing forward such cases of the effects of severe injury to the head and spine, as that of Count de Lordat, and those described by Sir A. Cooper, and Sir Charles Bell, is not at first apparent, but when they are studied in connection with the change of title of the work, a little light is let in on the subject. The reader is first familiarized with the serious effects, symptomatic and pathological, which follow in the wake of severe spinal injuries from falls from horseback or from tumbles from a carriage, and then he is led up gradually to see that if such results follow from accidents in ordinary civil life, what may be expected from a railway collision. You have only to reflect upon the circumstances under which the injuries are inflicted. "the rapidity of the movement, the momentum of the persons injured, and of the vehicle that carries them, the suddenness of its arrest, the helplessness of its sufferers, and the natural perturbation of

mind that must disturb the bravest," and you will then be satisfied that there is really something in the "railway spine."

This, then, is the key of the position. When the reader reaches the end of the eighth lecture, and has skimmed over the following four or five, he will be almost forced to admit that not only may grave effects follow severe and even slight injuries to the spinal cord, but that paralysis of the lower extremities and general prostration of the mental and physical powers may be directly traced to what is termed shock to the nervous system, without there being any evidence of local injury either to cranium or spinal column, or their contents. We confess that while we are prepared to acknowledge that much weight and importance must be attached to the views and observations of Mr Erichsen, yet we feel that, before he can get the profession to entirely agree with him in all his conclusions, he must be prepared to submit to it a larger amount of evidence bearing directly on the subject than he has yet done. For it is in the experience of many surgeons accustomed to treat persons injured on railways, that their patients do not invariably show the signs and symptoms which Mr Erichsen seems to have found in the few cases he has recorded, and upon which he founds his opinions. We would, therefore, urge upon him to supply, in the next edition of the work, reliable information regarding the cases of spinal mischief which have resulted from accidents on railways, and when he has done so, this work on "Concussion of the Spine" will carry greater weight with it than it can do at present.

We cannot close our notes without expressing our entire approbation of, and concurrence in, the admirable views expressed in the twelfth and thirteenth lectures on the "Medico-legal aspects of injuries to the spine," and we would earnestly commend them not only to surgeons whose professional services are employed by railway companies, but to all practitioners who may have to treat persons who have really sustained injuries in a railway collision.

The following extracts may convey to the reader an idea of the views of the author. They are well worthy of careful attention and perusal:—

"There is no subject in forensic medicine more important, and there are few more difficult, than that which relates to the correct estimate of the nature, the extent, and the probable consequences of an injury of the nervous system sustained in a railway collision. The importance of an attentive

study of these cases does not consist merely in the great frequency of their occurrence, though in this respect they stand in an unhappy pre-eminence, greatly exceeding in number all other cases put together in which medicine and law are unitedly brought to bear upon, and have to co-operate in the elucidation of the truth. But the consideration of these cases, from a medico-legal point of view, is a matter of the greatest importance, by reason of the difficulties with which they are surrounded and the obscurity in which they are enveloped. In this respect their investigation resembles somewhat, and is only equalled by, that of cases of alleged insanity. In those cases of injury of the nervous system that become the subject of medico-legal inquiry, there is, as in cases of alleged insanity, no technical difficulty experienced in the determination of the various questions that may arise in the more severe and obvious forms of disease. But it is far otherwise in the slighter and more obscure cases. In these, not only may the question be raised as to the actual existence of the alleged symptoms, but their existence having been admitted, the surgeon must determine the value to be put upon them as evidence of real organic disease or of mere functional disturbance. And in reference to the ultimate fate of the patient, he must state to what extent recovery is likely to take place, and when it may be expected.

“In addition to all the intrinsic difficulties which are necessarily connected with such cases, there is underlying, and greatly disturbing their simple professional aspect, the great question of the amount of pecuniary compensation that should be granted for the consequences of the alleged injury. Here we have a disturbing element that happily never intrudes itself into other questions of surgery and into very few of forensic evidence. But it is an element of disturbance to the effects of which due weight must be given by the medical attendant, in so far as it affects the *morale* of the patients, for it is apt to influence him injuriously, in more respects than one, by leading him either wilfully or unconsciously to exaggerate his symptoms, just as he is very apt to over-estimate his business losses and the pecuniary expenses entailed by the injury. But remember, if I advise you not to neglect to take this question of pecuniary compensation into your consideration, it is only so far as it affects the patient's symptoms, and the estimate he forms of his own condition. In no other way can you, as medical men, either as the surgeon to the railway company,

or still less, if possible, as the private medical attendant of the patient, have anything whatever to do with the matter. This is a question that is altogether out of our experience. A medical man who considers it in any way, except in its influence on the mental and through that on the physical state of the patient, meddles with what neither concerns him nor his profession, and places himself in a false or unenviable position. Let me, therefore, urge upon you, when you are engaged in these compensation cases, never under any circumstances to allow yourselves to be drawn into a discussion as to the amount of money payment to be made to the sufferer, unless the matter is expressly referred to you by the counsel employed by both parties. But even then I would advise you, if possible, to avoid being placed in the undesirable position of arbitrator. You may be sure that neither party will be satisfied with your decision. The fact is that a compensation claim for alleged injury is made up of various elements, of which the personal injury is only one. This, which is alone the surgeon's province, in reality often counts for very little in the case. The losses sustained in business, the expenses medical and others directly incurred by the patient, or to which he is liable to be put as the result of the injury, constitute as a rule the heavier and more important items in the claim for compensation; and these are matters that lie in the province of counsel, attorneys, and accountants, and are altogether foreign to that of the surgeon."

Mr Erichsen, in speaking of reports, makes some observations which are not generally known in Scotland. He says, after the examination has been made, it is usual and necessary for the surgeon to send in his report of the case to the legal advisers of the plaintiff or the defendant. This report should be full and clear. If the examining surgeons agree on all the points, they may draw up a joint-report. Should they not be of the same opinion, each must send in a separate one. These reports are usually considered confidential, but erroneously as regards that of the railway surgeon. It has recently been ruled by the Lord Chief-Justice of England (*Farquhar v. Great Northern Railway Co.*), that the report thus made to the company is not confidential, but that the plaintiff may have access to it. His lordship said that it was most desirable that a medical man on the part of the company should have an opportunity of seeing the patient, in order to ascertain the nature and extent of the injury. But then, on the other hand, the party should have the corresponding advantage of seeing what reports had been made



to the company concerning him. The object of the defendants, in an action for compensation for alleged injury, in sending their medical man to examine the plaintiff, is for their own advantage, not for his. It is to determine whether he really has been injured as alleged; if so, to what extent and when he is likely to recover. It is but fair, therefore, to the plaintiff that if he submits to the intrusion of a stranger, and suffers himself to be personally and minutely examined by one whom he is apt to regard in the light of a hostile witness, he should be made acquainted with the opinion that has been formed of his case. In all cases Mr Erichsen thinks the cause of truth and justice could be materially furthered in these cases if the medical men on either side were to meet and confer upon the case, and determine if possible on some just report. The difference of opinion between them would probably be found to be narrowed down to one or two points, probably to questions connected with the duration rather than with the nature of the alleged injury, and these unseemly conflicts of opinion which occasionally occur in Courts of Law would be in a great measure avoided.

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III.—ON ADDISON'S DISEASE; being the Croonian Lectures for 1875, delivered before the Royal College of Physicians. Revised and illustrated by Plates and Reports of Cases. By EDWARD HEADLAM GREENHOW, M.D., F.R.S. London: Longmans, Green & Co. 1875.

WITH the exception of the original memoir of Dr Addison, no separate treatise on the remarkable disease described therein had appeared in the English language till the publication of Greenhow's lectures; it was no easy matter for any one interested in the matter to obtain anything like a comprehensive and definite view of the present state of our knowledge on this subject, for a prolonged search throughout an immense number of volumes of journals and transactions, published in various languages during the last twenty years, was absolutely necessary for this purpose. True, Dr Greenhow had in the *Pathological Transactions* (Vol. 17) given a tabular summary with the *post-mortem* appearances in 198 cases, and, more recently, Meissner had in *Schmidt's Jahrbücher* supplied, with characteristic German industry, a most valuable summary of the recorded cases of this disease, drawn from all available sources: but even these papers of

Meissner's were, of course, inaccessible to all but a few in this country. It is well, therefore, after Addison's discovery has been before the medical public for a sufficient length of time, and after all the doubts which have been thrown on the pathology and even on the reality of this disease, that we should obtain from a competent authority a summing up of our knowledge, and a key to, if not a perfect solution of, the controversies which have raged on this subject. A careful study of this treatise, and of the cases here supplied, must convince every candid reader of the reality of Addison's disease; and the doubts raised by many eminent physicians only serve to add to our admiration of the clinical sagacity of our distinguished countryman, who disentangled the disease which bears his name from the group of the anæmias which he studied so closely. The intensely practical mind may refuse to see any advantage in the recognition of a disease which, when recognised, becomes thereby stamped as inevitably fatal, but to one in charge of a patient so affected it is no small matter in dealing with a disease which seems to consist essentially of weakness, without any serious mischief in any of the vital organs, and which resists every effort made to combat it, to know that the patient is really the victim of a complaint which, however mysterious, is well recognised, and that the downward progress is due to no deficiency in the attendants' skill, but to the serious nature of the malady itself. The difficulties which beset the true appreciation of the disease in question may thus be stated. Addison recognised certain constitutional symptoms (characterised shortly as anæmia and asthenia) to be associated with bronzing of the skin during life, and after death with disease of the supra-renal capsules. But bronzing of the skin came to be found not unfrequently without any such disease of the capsules, and disease of the capsules was often found without the constitutional symptoms and without bronzing of the skin. Even Addison himself, there can be no doubt, erred in introducing into his memoir some cases of cancerous disease of the capsules, and so paved the way for the errors of others and for the opposition thereby raised; for it is now quite certain that it is not every kind of mischief in the capsules which constitutes the real Addisonian disease, and that cancer in particular has no place in the affection as now firmly established. In like manner it is not every kind of bronzing, still less every kind of discolouration of the skin, which constitutes a symptom of Addison's disease. The constitutional symp-

toms, moreover, in some of the false cases (if we might so say), although resembling those described by Addison, are fully explicable by serious co-existing disease in other organs, whereas in the typical cases of this affection the extreme prostration is commonly contrasted with the perfect absence of any evidence of disease in the other organs during life, and an almost equally perfect absence of serious changes even at the dissection.

Dr Greenhow very successfully, as we think, clears up most of the difficulties thus indicated, and brings very clearly forward the great points on which we must rely in forming a diagnosis. We need not here summarise Dr Greenhow's conclusions, especially as his lectures have already been reported more or less fully in the weekly journals. We desire, however, to call attention to his appendix of cases. These are classified according as they are typical or complicated, and other lists include spurious cases, and cases of cancer of the capsules, &c., so as to illustrate the differences between the genuine disease and those affections which either during life or after death might be confounded with it. This appendix consists of 100 pages or more, and comprises notes of 333 cases. Thirty-seven of these are reported at considerable length, either in full or in abstract. The rest are indicated by short headings, and the references to the original sources are fully given. We have thus a most valuable bibliography of the subject.

Apart from the interest attaching to the clinical and pathological questions involved in this peculiar affection, the publication of a memoir on Addison's disease is useful in forcibly reminding us of the results obtained by the combination of clinical sagacity and pathological research. We are too apt now-a-days to trust unduly to increasing refinements in physical diagnosis and other methods of the same objective character, without always taking the time and the trouble to investigate and analyse the symptoms of which the patient himself complains, or the sensations which he experiences, and when these do not happen to square with the received symptomatology of recognised diseases, we tend to put them down to the distorted fancy of the patient, or at least to put them away from our serious consideration. The researches of Addison were rewarded by his separation of this remarkable disease from a mass of miscellaneous and scarcely intelligible disorders, and discoveries of a like kind no doubt await the research of others possessed of equal sagacity and equal patience.

- IV.—I.—ON THE DERANGEMENTS OF MOTION FOLLOWING DIVISION OF THE SEMI-CIRCULAR CANALS. *By* Dr LÖWENBERG, *Paris*. Pp. 43. Reprint from *Arch. für Augen.-ü Ohrenheilk.* B. iii. H. ii.
- II.—UEBER ENTFERNUNG BEWEGLICHER EXSUDATE AUS DER TROMMELHÖHLE. *Von* Prof. POLITZER, *Wien*. *Separatabdruck aus* Dr WITTELSHÖFER'S *Wiener med. Wochenschrift.* Nr. 43. 1874.
- III.—UEBER DIE ANWENDUNG DES PAUKENRÖHRCHENS. *Von* Prof. POLITZER, *in* *Wien*. *Separatabdruck aus derselben Schrift.* Nos. 15, 16. 1875.
- IV.—ON DEAF-MUTISM AND THE METHOD OF EDUCATING THE DEAF AND DUMB. *By* LAURENCE TURNBULL, M.D., *Physician to the Department of the Eye and Ear, Howard Hospital, Philadelphia*. Reprint from the Transactions of the Medical Society of the State of Pennsylvania. 1875.
- V.—TINNITUS AURIUM; OR NOISES IN THE EARS. Second Edition, with cases. *By* LAURENCE TURNBULL, Ph. G., M.D., &c., &c. Reprint from *Philadelphia Medical Times*. Lippincott & Co. 1875.
- VI.—ON DEFECTIVE HEARING; ITS CURABLE FORMS AND RATIONAL TREATMENT. *By* JAMES KEENE, F.R.C.S., *Lecturer on Aural Surgery at the Westminster Hospital Medical School*. London: Hardwicke. 1875.

I.—THIS essay of Löwenberg is a very valuable contribution to the physiology of this part of the ear, and indirectly to the pathology and therapeutics of ear diseases in general. The experiments which he has performed place the question of the function of the semi-circular canals at rest, especially when studied with those valuable ones carried out by Goltz. Moreover, the thoroughly scientific manner in which these experiments were conducted gives us faith in the correctness of the conclusions which he has deduced from them.

It is a tempting field for the experimental physiologist to work in, this one of the labyrinth, and so long as the smallest degree of mystery hangs about the function of any of its parts, and there will always be mystery we fear, we may expect to have history repeating itself in this as in many other things; but we question if future experiments will add much, if any thing, of importance to what we already know of its function. What we do want now is a more precise knowledge of the effects that follow certain pathological changes taking place in this part of the inner ear; in other words, to ascertain by careful examination, where such an opportunity offers, the nature of the abnormal changes in these canals, that call forth the peculiar symptoms usually ascribed by otologists to disease of the semi-circular canals. The non-fatal character of the more obscure affections of the labyrinth hinders the scientific investigation of the diseases of this part of the organ, and necessarily retards progress in all that relates to their

nature and treatment. Yet, if we reflect upon the advance which has been made in the diagnosis and prognosis of disease of the semi-circular canals, it will be seen that we have not been slow to take advantage of the light, scant though it may be, which science has afforded us. From 1842, when Flourens recorded his discovery that injury to the semi-circular canals of pigeons and dogs caused certain movements of their heads and bodies, till Ménière, in 1860, published his case of inflammation of this part of the ear, and recorded certain symptoms as being caused by this state, symptoms, by the way that go to make up the disease now known by the name of this lamented and talented aural surgeon—Ménière's Disease—was indeed a long time, but till then Flourens' experiments had not excited that interest which they deserved, and which they received after the publication of Ménière's cases. Since then, however, much progress has been made, not only in confirming the clinical histories of Ménière, but in more solidly establishing the conclusions of Flourens, conclusions which had, however, been assailed in 1861 by a no less noted physiologist than Brown-Sequard. When this last-named celebrated experimenter asserted that the movements, which Flourens ascribed to injury of the semi-circular canals, were in reality due to irritation of the auditory nerve, Czermak and Goltz confuted him, confirmed Flourens, and added some fresh facts to the accumulating store of knowledge which had previously existed on the subject. Since then aural surgeons and physiologists have been seizing every opportunity to verify their diagnosis, and to unravel the mystery that surrounded the function of this part of the internal ear.

The objects had in view by Löwenberg in instituting the experiments recorded in this *brochure* were most important ones, not only in regard to the physiology of these canals, but as well to the diagnosis of ear disease and aural therapeutics in general.

Flourens (*Recherches expérimentales sur les propriétés et les fonctions du système nerveux*) regarded the movements of the head and body following injury of these canals as due to the consciousness of pain on the part of the animals experimented on; in other words, that it was an attempt on their part to get away from the cause of the painful sensation, and that therefore consciousness was necessary to the occurrence of the derangements of motion. This, and other conclusions which Flourens arrived at, Löwenberg has shown, by means of these experiments, to be wrong. Further, as stated above, Brown-Sequard had asserted

that the derangements of motion were due to injury or irritation of the auditory nerve, and Czermak and Goltz had refuted this opinion, but it remained for Löwenberg to show more conclusively than they had done wherein Brown-Sequard's error consisted. This latter physiologist had experimented on rabbits after the method of Claude Bernard (*Leçons sur la physiologie et la pathologie du système nerveux*) for section of the facial nerve, but Löwenberg shows that it is not possible to perform this experiment in the rabbit, according to the method of Claude Bernard, without at the same time destroying the semi-circular canals.

The conclusions to which our author has come are as follows :—

1st. Derangements of motion following division of the semi-circular canals are the result of this injury, and not of an accompanying injury to the brain.

2nd. The symptom of vomiting observed by Professor Czermak in his experiments was the result of an accompanying injury to the cerebellum.

3rd. Derangements of motion are the result of *irritation* of the membranous canals and not of paralysis.

4th. Irritation of the semi-circular canals produces the derangements of motion reflectively, without participation of consciousness.

5th. The communication of this reflex excitation from the nerves of the membranous canals to those of the motor system takes place in the thalamus.

To those who know the history of the scientific investigations of Flourens, Czermak, and Goltz, and have had some clinical experience of the so-called "Ménière's Disease," this pamphlet by Löwenberg will prove both interesting and profitable, and we recommend it to their attention.

II. and III.—The two articles by Professor Politzer contain nothing of interest to the specialist, for whom, we suppose, they were written; indeed, we would suggest that the undoubted genius and universally recognised talent of this celebrated aurul surgeon could be better employed in the investigation of some problems in otology still unsolved than in writing articles such as those before us. Why we speak of them together will make itself apparent in the course of our remarks.

For the removal of fluids effused into the cavity of the tympanum in the course of one or other of the diseases to which it is subject, three methods of treatment have been followed, viz., the *laissez-faire* or natural method, i.e., simply waiting on to allow of absorption taking place in a natural way. The

proceeding of simply blowing the fluid away, or in other words, removing it from a part of the tympanum in which it acted as a mechanical obstructure to the passage of sound, to some other part of this cavity where its presence was less obnoxious, and the surgical proceeding of perforating the *membrana tympani*, and bodily removing the fluid by the opening made in this membrane. These three methods of treatment, thoroughly recognised and trusted, and we may add effective, in the cases for which they are respectively fitted, have not satisfied the restless spirits of those who practice the specialty of aural surgery. While we do not condemn this spirit of enquiry by any means, seeing that by it we increase our knowledge, yet we are disposed to say that, in regard to the particular question now under notice, our therapeutic knowledge is as perfect as it need be, and further investigation is hardly warranted in the face of the darkness that surrounds some other questions in the domain of theoretical and practical otology, hitherto less noticed than they deserve to be.

To these methods, however, Politzer now proposes to add this—To remove the fluid from the tympanum by placing the patient in such a position that the tympanic orifice of the Eustachian tube becomes the most dependent part of the cavity of the middle ear; in other words, to cause the anterior wall of that cavity to become, for the nonce, the inferior one, and while in this position to blow the fluid out of the cavity by the dependent Eustachian tube. The proposal explained by him is characteristic of the inventive genius of the Professor, but it is one that we fear neither patients nor operators will care to adopt. He also proposes to remove the fluid by introducing the tympanic catheter of Weber-Leil into the tympanum while the patient is placed in the prone position. To be just, however, we must add, that this proposal is intended, like the former one, to apply to cases in which the fluid is of a serous nature, or at least, not very tenacious, in which case he, as might be expected, has recourse to the operation of parakentesis of the *membrana tympani*. The last proposal, we ought to say, forms the subject of the second pamphlet; besides this, however, he proposes in it to employ the tympanic catheters for the removal of accumulations from the external auditory canal and tympanum in certain conditions of these parts of the organ.

These tympanic catheters were the invention of the well-known aural surgeon, Weber-Leil, of Berlin (co-editor of the *Monat-Schrift für Ohrenheil.*) for use, with his ingenious "Konintron," in the treatment of progressive deafness. For this purpose they are admirably adapted, but when it is proposed

to use them to remove fluid from the tympanum, then there are anatomical reasons why their use will be followed by failure, unless the patient is put in the position recommended by Politzer, and the fluid is almost non-viscid. Even then it is not a proceeding to be recommended, for the irksomeness of the details necessary to its success, and the pain which the passage of the instrument in many cases, in the best hands, calls forth, are quite as unbearable as, if not more so than, those attendant on the incision of *membrana tympani*.

IV.—Dr Turnbull's pamphlet on "Deaf-Mutism" is hardly up to the mark in a historical point of view, and although we are in favour of the oral or German system of teaching deaf-mutes, we think his paper hardly does justice to the dactylogical or finger-sign method, known as the "French" system. We have not space here to discuss the respective merits of these methods, but we may remark that, considered from all aspects, the so-called "German" method is the one that finds favour with us. It is a curious fact, also, that this method, now so universal in Holland, Belgium, Austria, Prussia and America, owes its origin to an English ecclesiastic, John de Beverley, Archbishop of York, and in fact was practised first by him with success in the year 700 A.D. Indeed this method in England was well developed as a system of teaching deaf-mutes centuries before Amman introduced it to Holland and Heinecke to Germany. How to explain its non-recognition publicly in England till within the last few years (and then brought to us by natives of Holland, Messrs Van Praagh and Van Asch) is a difficult matter indeed. Probably Schiller's lines suggest something in explanation :

Zu allen Zeiten wo die Kunst verfiel  
Ist sie durch die Künstler gefallen.

Happily, the day approaches when, with a few exceptional cases, "sounds," to the rigid exclusion of "signs," will be employed in the education of our deaf-mute children.

V.—When the pamphlet on "Tinnitus Aurium," by Dr Turnbull, first reached us many months ago, we found that it was altogether a most disappointing production. The crudeness of its style, and the lack of that precision which ought to characterise scientific contributions, made the reading of it a somewhat unpleasant duty; but we read it nevertheless. Instead of learning what the writer did or thought about the aetiology, diagnosis, pathology, and treatment of this troublesome symptom of most ear diseases, we found the pamphlet to be made up in great part of direct quotations from other



writers on otology, in fact to be nothing more than a compilation of their labours. On this account, and because one could glean almost nothing of the writer's own opinion on the subject of which the pamphlet treated, we declined to notice it, trusting at the same time that we had seen the last of it. We have been, however, mistaken in this latter respect, for it comes to hand again as a "second edition, with cases." As in duty bound we have looked into this edition also, and find it to be substantially a reproduction of the first, with the addition of eleven uninteresting reports of cases, which have been treated with more or less success by the author.

VI.—This pamphlet by Mr Keene is pleasant reading. The material for it originally formed the subject of a paper read by the author before the Harveian Society, London. In its present form, what he says will be of service to the profession in calling attention to the importance of a much-neglected department of the healing art. To awaken such an interest is, indeed, the aim of the author, and if he succeeds in doing so, he has not written in vain.

We have just space to remark here that in speaking of the rule of practice in cases of *suppuration* of the middle ear, Mr Keene has done Mr Hinton an injustice. If the author of this pamphlet re-consults Hinton's able "Questions of Aural Surgery," he will no doubt discover that in regard to the absolute necessity of early incision of the *membrana tympani* in such forms of tympanic disease, Hinton is quite decided. It is in regard to the question of the necessity of early paracentesis in *simple acute katarrh* of the tympanum, that he desires to "hold an undetermined position." To have held an "undetermined position" as to free and early evacuation of *pus* either from the tympanum or mastoid cells, would have been contrary to the teaching and practice of Hinton. Mr Keene has misunderstood his remarks, and the injustice done is, we therefore believe, unintentional.

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V.—THE ANATOMY OF THE LYMPHATIC SYSTEM. By E. KLEIN, M.D.,  
*Assistant-Professor at the Laboratory of the Brown Institution, London.*  
II.—THE LUNG. London: Smith, Elder & Co. 1875.

(FIRST NOTICE.)

THE second instalment of Dr Klein's valuable work on the Anatomy of the Lymphatic System is even more important than the first, for he here comes face to face with the great problem which he, at the outset, set himself to solve, namely, the relation of the lymphatic system to the process of tuberculosis. In taking up this enquiry he, however, found it necessary in the first place to investigate the distribution of the lymphatics in the normal lung, our knowledge on this point being so incomplete as to form a very insecure basis for pathological research; hence he divides this section of the work into two parts, the first treating of the normal, and the second of the pathological conditions of the lymphatics of the lung.

The author has made the subject so peculiarly his own that anything in the way of criticism is almost out of the question. We shall therefore content ourselves with a brief summary of the more important facts elicited in the investigation, and the conclusions arrived at.

The first chapter describes the normal arrangement of the pleural epithelium, the author dwelling more especially on the changes in appearance which the cells present when the lung is distended at the end of inspiration, and when collapsed at the end of expiration; in the former case they are transparent, flattened, and spread out, in the latter they are granular, polyhedral or even columnar, of less diameter, and have spherical nuclei. In the next chapter the matrix of the pulmonary pleura is described, the important feature being the existence of lymph spaces between the bundles of connective, and surrounding the tissue corpuscles, the arrangement of the cells and spaces resembling what has been described in the cornea, and what Dr Klein pointed out as being also sufficiently evident in the matrix of the peritoneum. In the lung of the guinea pig, the author has found in the pleural matrix a delicate network of bundles or bands of unstriped muscular fibre, and has also found scattered fibres having all the characters of unstriped muscle in the same structure in cats and dogs,—but has hitherto been unable to discover them in the human pleura. He believes that this muscular coat assists in the contraction of the lung in expiration, and that it has a still more important function in relation to

the lymphatic circulation. We can only do justice to the author's views on the latter point by quoting him *verbatim*. He says (p. 9),—"The pleural muscular coat plays also an important part with regard to the lymphatic system of the organ. In the next chapter we shall see that the lymphatic vessels that are distributed on the surface of the lung, and that run through the ligaments of the lung towards the bronchial lymphatic glands, are in communication with the meshes of the pleural muscular coat, and further, that these are again in communication with the free surface, *i.e.* with the pleural cavity. Hence it will be clear that the action of the pleural muscular coat stands necessarily in a direct relation to the lymphatic absorption from the pleural cavity. In consequence of the muscular bundles during inspiration separating widely from each other, and the meshes between them becoming enlarged, it happens that the communication openings between the latter and the free surface are also dilated, while doing this the meshes between the muscular fibres evidently will acquire a pumping action, and be enabled to fill themselves from the pleural cavity. During expiration, on the other hand, while the meshes themselves as well as their communications with the pleural cavity collapse, or rather become compressed, the contents of the former will be pressed into the lymphatic vessels of the surface of the lung mentioned above. These relations justify our saying that the pleural muscular coat acts like a pump with reference to lymphatic absorption."

In the third chapter the author describes the lymphatic system of the pleura pulmonalis, and shows that free communications between the cavity of the pleura and the lymphatics exist in the form of stomata, identical with those discovered by Recklinghausen, on the peritoneal surface of the diaphragm, by Dybkovski on the costal pleura, and by Dogiel and Schweigger-Seidel in the septum cisternæ lymphaticæ magnæ of frogs. He also replies to the objections which have been made by Bizzozero, Ranvier, and Tourneux, and points out what he considers defects in their modes of examination.

The next two chapters are occupied with the anatomy of the lymphatics which surround the bronchi and the blood vessels, the former being here named *peribronchial* and the latter *perivascular* lymphatics. In connection with the peribronchial lymphatics, Dr Klein confirms the observation recorded by Burdon-Sanderson of the existence of lymphatic follicles just outside the wall of the lymphatic vessel; they

spring directly from the wall, are "composed of a reticulum of fine fibres with lymphoid corpuscles in its meshes," and are in "every respect analogous to the lymph-follicles found in other mucous membranes, e.g. in the tonsils and in the intestine, as well as in the cortical part of true lymphatic glands." The author has discovered in the epithelium of the bronchi certain structures which seem to correspond pretty accurately with the pseudo-stomata described by him in the peritoneum; they are irregular in shape, have a different refracting power to the cells among which they lie, and stain differently to these latter. They seem to form a connection between the free surface of the lumen of the bronchus and the connective tissue cells of the sub-mucous tissue, and are in fact *interepithelial connective tissue cells*. It is by means of these, Dr Klein thinks, that pigmentary particles penetrate from the bronchus into the lymphatic vessels, as described by Sikorsky in the record of his experiments.

The radicles of lymphatics in the alveoli (air cells) commence as fine anastomosing lymph-canals in the walls, which follow first the course of the elastic fibres, and then of the capillary blood vessels; they have at their points of anastomosis, and in the meshes of the capillary plexus, minute irregular cavities, or lacunæ which are often rhombic, or stellate in shape. These channels empty into the perivascular lymphatics which accompany both arteries and veins, and which sometimes invaginate the vessels in the manner described in the first part of this work. In the case of the smaller blood-vessels, however, these lymphatic vessels are often replaced by irregular spaces, lined by a true endothelium. Finally, the author finds pseudo-stomatous processes in the alveolar wall, connecting the epithelial surface with the lymph-canalicular system, and he is of opinion that "under certain conditions these pseudo-stomatous canals may be distended so that even formed particles may find their way from the alveolar cavities into the lymph-canalicular system of the alveolar walls. In fact lymphoid cells may migrate under pathological conditions, from the alveolar cavities into these lymphatics."

The fourth chapter terminates with a summary of the lymph paths of the lung, and with it the author concludes his account of the lymphatics in their normal conditions.

We purpose on a future occasion discussing the second and larger part of this work, the interest of which far exceeds that of the portion we have thus hurriedly glanced at. In the meantime we must express our indebtedness to Dr Klein for the exceedingly lucid exposition he has laid before

us. The subject is a very difficult and abstruse one, and a little obscurity here and there is almost unavoidable, but the present volume is so much more intelligible than the former one, and is generally so clear and simple that we feel great credit is due to the author, who has evidently spared no pains to make himself understood.

We must again confess to a little disappointment at the whole of the observations having been confined to the anatomy of the lower animals; interesting and important as they undoubtedly are, they would have been still more so had they borne more directly on the problems of human physiology and human pathology, and we trust the author will not consider his researches complete until he has as fully investigated the human lung as that of the guinea pig, the rabbit, the dog, and the cat.

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VI.—THE SURGEON'S POCKET BOOK. *By* Surgeon-Major J. H. PORTER.  
London: Charles Griffin & Co.

THIS little volume aims at affording information regarding the "Practical Treatment of the Wounded at War;" and, as such, it is of great value, giving instruction on points of practical importance, with clearness, brevity, and efficiency. It is abundantly illustrated with woodcuts representing the necessary appliances for the transport and treatment of the wounded. By reference to these woodcuts the eye may take in at a glance the idea to be carried out, and thus save time during the hurry and confusion incidental to the battle-field. It likewise enters fully into the utilisation of such objects as may be at hand on the field of battle for the purpose of splints, pads, litters, &c. It is of small compass, beautifully got up, and answers in an admirable manner its intended purpose.

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VII.—AIDS TO ANATOMY. *By* GEORGE BROWN, M.R.C.S., L.S.A. London: Bailliére, Tindall & Cox. 1876.

"AIDS to the Diploma of the Royal College of Surgeons of England" would perhaps have been a better title for this little book, since nearly all the tables contained therein are designed as answers to pet questions of certain examiners at Lincoln's-Inn-Fields. We have no objection to the tabular arrangement

of anatomical facts, and indeed are ready to admit that in many cases it much facilitates the acquisition of a knowledge of the subject; but it is essential to this desirable end that the student should compile the tables himself, and not simply "copy them from anatomical works, or from the slates of dissecting rooms he may visit."

In the hasty glance we have taken at Mr Brown's book, we have discovered no very glaring errors, but few, if any, noteworthy excellencies. In his anxiety not to leave out anything the omission of which might place the students who trust in him in jeopardy at their "first half," he has rushed into the opposite error of including in certain "triangles" or "spaces," structures which are not naturally found in them. Thus, while he describes the floor of the inferior carotid triangle as formed by the sterno-hyoid and sterno-thyroid muscles, he enumerates, as objects to be found therein, the common carotid and inferior thyroid arteries, as well as the pneumogastric, recurrent laryngeal and sympathetic nerves. No doubt it is very important that the student should be thoroughly acquainted with the relative position of these structures, but why should our author first limit his triangle by a floor, and then immediately pull up that floor to see what lies beneath? We trust that *ligamentum postici Winslowii* at page 13 is a typographical error, as we are not acquainted with the *posterior Winslow*, in honour of whom we suppose it must be named.

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VIII.—POSOLOGICAL AND THERAPEUTICAL TABLES, CONTAINING THE DOSES, ACTIONS, AND USES OF THE MEDICINES IN THE BRITISH PHARMACOPŒIA: WITH POISONS. By ALEXANDER HENRY, M.B. Edinburgh: Maclachlan & Stewart. 1875.

THIS 'pocket volume will, we have no doubt, secure a large circulation, both among busy practitioners, and students of that most tedious subject, *Materia Medica*. Besides the doses of the medicines, we have a short and yet very sufficient account of their actions, and, in some instances, hints as to the best mode of administration. A new feature also (borrowed we believe from the Homeopaths), is an "Index of Diseases with Appropriate Remedies" which we are sure will prove very useful to young practitioners. Finally, there is a brief account of the more important poisons: their smallest fatal dose, symptoms, treatment, and analysis being all treated of in a concise but satisfactory manner. We can cordially recommend this useful little work to the profession.

## Exchange Journals.

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By Dr JOSEPH COATS, Pathologist to the Western Infirmary,  
Glasgow.

VIRCHOW'S ARCHIV. VOL. LXIII.

PARTS III. and IV. May, 1875.

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XIII. **Obstruction of the Superior Mesenteric Artery** (*Litten*)—The experiments recorded here were made

in Cohnheim's laboratory, and they are a further elaboration of those published by that author. Cohnheim was led to conclude from his observations that embolism, or occlusion of arteries, has very different effects according as the artery has anastomosing branches beyond the point of obstruction or not. If there is free anastomosis, then it is only exceptionally that any ill effects result, whereas if there is no anastomosis, if the artery is what he calls an end-artery, then the tissue in the territory of the occluded artery perishes, either with or without hemorrhage. Cohnheim was thus led to distinguish between the effects of occlusion of ordinary and of end-arteries. But now it seems that though the superior mesenteric is not an end-artery, yet occlusion of it produces results similar to those from occlusion of an end-artery. That is to say, after ligature there was no return of the circulation up to the death of the animal, but the vessels became engorged, hemorrhage took place in from 10 to 12 hours, and the portion of gut showed signs of necrosis. Yet this artery has pretty free anastomosis; if it be ligatured in the dead body, its territory can be filled through the communicating arteries, by an injection material thrown into the aorta. It thus appears that this artery functionates as an end-artery, but is not so anatomically. How is this to be explained? The explanation offered here is this. In different cases different periods of time are occupied in the establishment of the anastomosing circulation. Some arteries take longer, some shorter. The establishment of the circulation may possibly take so long in some cases that, before it can be effected, the integrity of the vessels is so seriously compromised as to render them incapable of carrying on the circulation. Suspension of the circulation has been proved to interfere with the integrity of the walls of the vessels, and in the case of the superior mesenteric it seems that already, in from 2 to 2½ hours, the vessels are seriously injured. This was proved as follows: The artery was ligatured in such a way as not to injure its coats; and after it had been occluded for some time, the ligature was cut and the circulation allowed to proceed. It was found that occlusion in this way for 2 to 2½ hours was sufficient so to damage the walls of the vessels that hemorrhage occurred. That is to say, at the arterial pressure blood escaped from the vessels after the circulation had been stopped for that time and then restored. But where the artery is permanently occluded, hemorrhage does not occur for 10 to 12 hours, the reason being that here the pressure is much less, being that from the veins acting back on the capillaries. It would thus appear



that, in the case of the superior mesenteric, the collateral circulation is so slow of being established that before it can be accomplished the walls of the vessels are practically unable to carry on the circulation. The artery is therefore physiologically and pathologically an end-artery. There are cases recorded from which it appears that these observations apply to the human subject. In these, hemorrhage and other results followed on embolism of the superior mesenteric artery.

**XIV. The Origin of the Pigment in Melanotic Tumours** (*Gussenbauer*).—The author has examined a number of melanotic tumours, and he finds evidence in all of them of the existence of a similar process. This process he has studied chiefly in a melanotic sarcoma of the eyeball, and the following is something like what he finds: The process of pigmentation begins with engorgement of the vessels with blood, the smallest vessels being chiefly concerned, but occasionally larger arteries and veins. The vessels dilate in consequence of this engorgement, especially the capillaries. This leads on to complete stagnation of the blood, which condition may be considered as completing the first stage in the process. The vessels remain for some little time in this state, but by and by the blood coagulates, and this is followed by a solution of the colouring matter of the red corpuscles. The pigment is dissolved in the plasma and diffused in the tissues, which it at first stains generally. Afterwards the dissolved pigment is condensed or precipitated. The cells of which such growths are composed are mostly granular, or become so, and in the condensation of the pigment the granules are most deeply stained, so that the pigment looks as if it were granular. The author believes that probably the pigment in all tumours arises in this way, and that even pigmentations of the skin have a similar mode of origin. He lays some weight on the engorgement and thrombosis as preliminaries, and reminds us of the fact that where the skin rapidly assumes a dark colour, as by exposure to the sun, there is generally along with this a desquamation of the epidermis. This latter indicates a kind of inflammatory process, and we may presume that there is engorgement and even stagnation of the blood in the skin.

**XV. A Case of Melanotic Sarcoma of the Choroid** (*Magnus*).—This case is illustrated by an ophthalmoscopic drawing. The case was seen in its earlier stages and watched. It confirms an opinion expressed by Becker, that a sarcoma arising in the neighbourhood of the macula lutea has but little tendency to grow into the cavity of the bulb.

**XVI. Œdematous Swelling of the Paccinian Bodies** (*Przewoski*).—This is rather an interesting paper, which describes the normal and pathological appearances of the Paccinian bodies of the abdomen. The œdematous bodies were those of the abdomen, and they were enlarged so as to form rather prominent objects, some of them reaching the size of peas.

**XVII. Tuberculosis of the Testicle** (*Tizzoni and Gaule*).—It has been doubted whether the condition commonly described as tuberculosis of the testicle, in which, with an inflammatory induration, there is also a cheesy condition, is truly tubercular. Taking the name tubercles to mean little round nodules, the description given by Rindfleisch of the disease in question hardly warrants us in calling it tubercular. He mentions an infiltration of round cells into the interstitial tissue. The present authors also find such an infiltration, but in addition are quite satisfied of the presence of distinct tubercles. These are present in different proportions to the general infiltration at different parts of the organ. They are less abundant in the region of convoluted than of straight tubules, but in both the interstitial infiltration predominates. In the *rete testis*, however, the miliary nodules are predominant. In addition to these two conditions of the stroma, there is an intratubular inflammation which results in a cheesy formation, occupying and distending the tubules. The paper is accompanied by illustrations, some of which are specially referred to in the text to show that the giant-cells which are present in the tubercles are thrombi in the lymphatic vessels.

**XVIII. Membranous Dysmenorrhœa** (*Finkel*).—This affection is believed by the author to be virtually an endometritis. The membrane discharged consists of the entire thickness of the mucous membrane of the uterus, even down to the blind extremities of the glands in most cases. But the membrane is not normal, it is occupied by innumerable cells like those of granulations, and it is also the seat of blood-clots and fibrine. The existence of these, as well as the persistence of the affection, the sensitiveness of the uterus, and the abundant mucous discharge occurring in this disease, all point in the direction of an inflammatory process. The great quantity of granulation cells may account for the separation of the membrane. The author is of opinion that the disease is in no way related to abortion.

**XIX. Nerves in the Liver** (*Nesterowsky*).—This

author finds the blood-vessels in the liver surrounded by a rich net-work of nerves, and this applies both to larger vessels and capillaries.

**XX. Alterations in the Brain in Typhoid, &c.** (*Popoff*).—These observations were made under the direction of Recklinghausen, at Strassburg, so we may receive them with the weight of his high authority. It may be remembered that there are in the brain very numerous spaces for the circulation of serous fluid outside the blood-vessels. Besides those around the blood-vessels, there are spaces around the ganglion cells, the nerve-fibres, and elsewhere. Now, in typhoid fever, all these spaces contain an excess of contractile cells, derived, as the author believes, from the enlarged spleen, closed follicles of the intestine, and medulla of bone. These cells (wander cells) exist in all the spaces mentioned, and even penetrate into the substance of the ganglion cells. But besides this there are changes in these latter structures themselves which are evidences of increased activity—namely, division of the nuclei and of the cells. These facts all lead to the conclusion that we have here an inflammatory process, and they form a physical substratum for the nervous symptoms of typhoid. The author finds in artificially induced traumatic inflammation of the brain in animals processes in many respects similar to those detailed above. There is a similar penetration of the wander cells into the ganglion cells, and the same process of division in the latter. The chief difference is that in typhoid there are wander cells in the serous spaces before distinct changes are visible in the ganglion cells, the reason apparently being the abundance of such cells in the blood. Another difference is the presence of the compound granular corpuscles in traumatic inflammation. This leads on to the detail of results obtained on producing inflammation by injecting pigments such as vermilion and Indian ink into the brain. If this is done, and the brain examined in a comparatively short time, the granules of pigment are to be found in the ganglion cells. In fact, they are hardly anywhere else, these cells seem to have picked them up, and this appears to be evidence that the ganglion cells are active contractile bodies. But after the inflammation has progressed there appear the so-called compound granular corpuscles, and the pigment is now found in them. This seems to lead to two conclusions—the compound granular corpuscles are contractile, as some other authors have already stated—and they are descended from the ganglion cells. The ganglion cells contained the pigment in the earlier stages, and it is now found in the granu-

lar corpuscles, so it is to be inferred that the latter are derived from the former—a conclusion which is rather unexpected. The author compares with the conditions found in these affections, that observed in sclerosis of the brain. In the cases described above, the proper nerve cells are specially involved, in sclerosis it is the connective, or interstitial substance, the neuroglia and its vessels. The ganglion cells suffer secondarily.

**XXI. Crystals of Biliary Pigment in the Newly-born (*Orth*).—**This author has met with no less than thirty-seven cases of newly-born children in which crystals of pigment existed, and all within a space of eighteen months. This pigmentation seemed related to icterus of the newly-born—for in no case of icterus were they absent, while in those cases where the crystals were present, but no icterus, there was a probability that this affection had existed. The crystals were present in the kidney in all the cases, and were most abundant towards the apices of the papillæ. In the cortical substance there was generally a yellow staining, but no crystals. In twenty-six of the cases there was uric acid as well as pigment. Crystals were also present in the blood in twenty of the cases, the blood examined being that found in the heart. In the liver, pigment was always present, either in the usual form of masses in the hepatic cells with diffuse yellow staining, or as red or brown crystals scattered everywhere, but chiefly in the interstitial tissue. In two cases there were small ulcers in the stomach, in the base of which there were crystals. These crystals were rhombic plates or columns, or bunches of needles. They were composed of biliary pigment of a red colour (bilirubin), and gave the following reactions: If potash be added so as to dissolve the crystal, and the excess removed by adding water, and then nitric acid applied, you get a play of colours, green, blue, violet, red, which may be seen in concentric rings. Then sulphuric acid gives a yellow colour which, on adding sufficient water, passes into a grass-green. Chloroform produces a golden-yellow colour which is removed by an alkali, the pigment differing in this respect from hæmatoidin. It is remarkable that these crystals are so constant in the icterus of the newly-born, but not in the adult, where icterus is often due to the same cause (obstruction of bile ducts). In the adult we find in the kidneys diffuse colouring and granular pigment, and this pigment has various colours, green, brown, or black, as well as red, while it is always red in infants. It is to be noted that similar crystals are found in one disease of adult life, acute yellow atrophy of the liver, in which disease the author found them in the kidneys, spleen, and

lungs as well as in the blood of the heart. There is no apparent reason for this difference between infants and adults, unless it be some difference in the phenomena of nutrition.

**XXII. Electro-Therapeutics** (*Schwalbe*).—This author treats a number of diseases by electricity. He has obtained good results by its use in cases of varicose veins. He applies the induced current to the affected leg, only dwelling at each spot for a moment, but going over the limb several times so that the sitting occupies five or ten minutes. Cases of varix not curable by this means he treats by injection of alcohol, or alcohol and ergot. He treats by a similar method chronic ulcers, erysipelas, elephantiasis, and diseases of the joints. He uses it also in cases of consumption where it is of special advantage when pleurisy exists. The pain is at once cured by Faradizing the whole chest wall. In such cases he also electrifies the muscles so as to increase their size by a kind of artificial gymnastics.

**XXIV. The "Uncontrollable Movements"—Peculiar Intestinal Lesion** (*Munk*).—The subject of these observations was a dog which had been treated eight times in the course of three days with carbonic oxide gas with a view to producing artificial diabetes. A meningitis developed, one of the symptoms of which was one form of those "uncontrollable movements" which have attracted considerable attention of late. The animal presented that peculiar motion round a ring which may be called the circus-movement. It afterwards recovered from this symptom, and lived some little time. After death evidences were discovered of an acute meningitis. This peculiar movement exhibited by the animal has been associated with lesions of various parts of the encephalon, but in the present case the part irritated seems to have been one of the crura cerebri. The arachnoid had been inflamed over this part, and the irritation would be due either to an extension of the inflammation or pressure of the exudation. The intestinal affection consisted of an extravasation of blood into the walls and lumen of the stomach and small intestines, as well as ulcers having the general appearance of the chronic ulcer of the stomach, situated in the duodenum and upper part of ileum. The author accounts for the hemorrhage and ulceration by supposing that with the injury to the crus cerebri there would be vaso-motor paralysis and great dilatation of the vessels. Schiff long ago found ulceration of the intestine following division of the crus cerebri.

XXVI. (1.) **The Chemical Constitution of Echinococcus Fluid** (*Munk*).—Hitherto such fluids have been found to contain chloride of sodium, sugar, inosite, and succinate of soda. The absence of albuminates has been used for purposes of diagnosis. In the cases examined by this author there was also practically no albumen. Grape sugar, Na Cl., as well as some calcium and magnesium were detected, and, besides these, urea and creatinine were present in quite appreciable quantities.

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VOLUME LXIV., PART I. July, 1875.

CONTENTS.—I. On the seats of origin and mode of extension of cancer in the female pelvis, by W. A. Freund, Breslau. (Plate I.) II. The pathology of sunstroke, by R. Arndt, Greifswald. III. On the effects of artificial suppression of the perspiration on the animal organism, by Dr N. Sokoloff. IV. On the use of the forceps in narrow pelvis: critical, statistical, and experimental contributions, by Dr Cohnstein, Berlin. V. Experimental investigations and observations on the action of salicylic acid in diphtheria, by L. Letzerich (Plate II.) VI. On traumatic inflammation of the cornea, by Dr H. Walb, Bonn (Plate III.-IV.) VII. Smaller communications: 1. Public letter to Dr L. Mayer, by L. Letzerich. 2. On the structure of the cornea: a letter to the Editor, by Dr G. Thin, London; note by the Editor. 3. On obligatory inspection of meat, by Dr Kornfeld, Wohlan. 4. Some remarks on the present state of the question of the growth of bone, by Dr J. Wolff; note by the Editor.

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I. **Origin of Cancer from Mechanical Irritation** (*Freund*).—It is known that cancer of the uterus very commonly begins in the vagina, and one can understand that this portion of the organs of generation is exposed to mechanical violence. The author in this paper contributes four cases in which there was cancer of the female pelvis; but the uterus was in none of them involved. On analysing these cases he finds that, although they differ in age, constitution, and mode of life, yet they have one point in common—they were all so circumstanced that the uterus was protected from mechanical disturbance. He looks at these cases as confirmatory of the view that the determining cause of cancer is mechanical irritation.

II. **The Pathology of Sunstroke** (*Arndt*).—This is a very interesting communication, and contains much that is very suggestive. The paper begins with the description of a march of troops on a hot day in July, 1870, with deficient shelter and no supply of water. There occurred numerous cases of sunstroke, of which no less than seven died. *Post-mortem* examination was only obtained in three of them, and even in these the conditions for observation were not perfect. An abnormal paleness was found in all the organs, the brain especially being as good as empty of blood. The paleness depended on emptiness of the smaller vessels and capillaries, there being an overfilling of the larger vessels in many organs, which amounted to rupture in some, so that there were ecchymoses on the pericardium, endocardium, and pleura. This overfilling of the larger vessels appears to have induced some observers to believe that there is a hyperæmia of the organs in sunstroke; the blood, issuing from these on to the cut surface, gives an erroneous impression of congestion. At anyrate, there was anæmia, with swelling and œdema of the brain, liver, and kidneys. The substance of the brain was moist, and in some the ventricles were overfilled. In the liver, kidneys, voluntary muscles and heart there were appearances usually ascribed to parenchymatous inflammation, namely, cloudy swelling. This condition was not detected in the brain, but there it is difficult to distinguish, and, judging from the œdema and symptoms, it probably existed. Now, such a general cloudy swelling as this is met with in acute infective fevers, where the patients have died at the acme of the disease with high temperature. It is ascribed by some to the altered condition of the blood in these fevers; but the author believes it to be due, both there and in sunstroke, to the high temperature. The heated blood irritates the tissues, and induces this form of inflammation in the various organs involved. For, there may be great alteration in the blood in these diseases, but if the temperature keeps moderately low, there seems to be little parenchymatous inflammation. Then, both in these fevers and sunstroke, the symptoms are much more related to the temperature than to the alteration of the blood. The symptoms of sunstroke are described in the various degrees of the affection. It is unnecessary to dwell on them here. There is at first a rise in temperature, with sweating, thirst, and feeling of exhaustion. These all increase in intensity if the case goes on, till a temperature of 44° C. (111° F.) may be reached. The skin is dry and burning; there is a feeling of impending death,

violent palpitation and oppression in the chest, and so on. In the lesser degrees the patient may recover rapidly and completely; there is apparently no definite organic change in the organs. But in the higher degrees, the brain seems to be the seat of lesions which may have a permanent effect on its functions. It is to be presumed that the nature of these lesions is inflammatory, and the fact that persons who have had sunstroke are prone to alterations of their mental condition, and even to mental diseases, is an indication of the permanency of these changes. It is to be noted that cases of infective fever, when the temperature has been very high, are said to have a similar tendency to nervous sequelæ.

### III. Artificial Suppression of Perspiration (*Sokoloff*).

—It is well known that when an animal is varnished over, so as to stop the perspiration, it speedily dies. The explanation of this occurrence, which obviously suggests itself, is, that some material, which is usually given off in the sweat, is retained and acts as a poison. This was Edenhuizen's theory, and he supposed that the deleterious substance was an amine base. Laschkewitsch, however, has recently stated that all is explicable on the theory of a vaso-motor paralysis, and consequent loss of heat by the animal. He believes that the vessels of the skin are widely dilated, and there is so much radiation of heat as to lower the temperature to a degree incompatible with life. The present author grants that there is a reduction in temperature before death, but finds no such dilatation of the vessels of the skin. Besides, when the animal is kept warm, by being wrapped in cotton wool, its temperature still falls, and death occurs, though more slowly. In his experiments, the author used dogs and rabbits, and generally varnished them with oil, as being less irritating than varnishes which become solid. He finds that both in partial and total varnishing, albumen soon appears in the urine, with epithelium and young cells. The appearance of albumen was always the first phenomenon, and occurred before any function disturbance was visible. The fact seems to be that there is in the blood some poison which first attacks the kidneys, and produces inflammation there. The blood of an animal which has been treated in this way, when transfused into a healthy animal, produced temporary albuminuria. This is what we should expect, for the supposed poison is in the sound animal diluted by the existing blood, and is not, as in the varnished animal, being continually produced. If these views are correct, then we ought to hesitate to adopt varnishing as a method of



treatment in man. Senator has recommended it in order to reduce the temperature in fevers, but it does not seem to be so effective in men as in animals, and, if it is, then its effect on the kidneys is a serious drawback.

**VI. Inflammation of the Cornea** (*Walb*).— This author uses a very ingenious method for determining the part played by the cornea corpuscles in inflammation of the cornea, the method being similar in principle to that used by Popoff, in the experiments on the brain referred to above, at p. 115. He injects carmine, suspended in fluid, into the corneal tissue, by means of a perforated needle. This, if carefully done, does not lead to any inflammation; but the granules of carmine are taken up by the cornea corpuscles, and there is thus an artificial pigmentation of them. The cornea is allowed to remain for some weeks after it has been thus treated, and then it is used for experiment. The author finds that in slight inflammations, where there is no suppuration, the cornea corpuscles are alone altered. They could be traced on account of their pigmentation, and it was found that they disappear as cornea corpuscles, being converted into indefinite masses. These are carried (probably by currents) towards the centre of inflammation, where they undergo growth and division; but this is not very active. These cells do not produce pus-corpuscles, and in actual suppuration the pus comes from the margins, while the cornea corpuscles undergo the changes mentioned above. So it looks as if the pus-corpuscles are mainly escaped blood-corpuscles. It is worthy of note that, even after intense irritation of the cornea, the author was able to prevent suppuration by the vigorous use of atropine, just as we sometimes succeed in doing in actual practice. The experiments were made on rabbits.

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STRICKER'S MEDIZINISCHE JAHRBÜCHER.  
1875. PART III.

CONTENTS.—I. Farewell address of Prof. Carl von Rokitsansky. II. The normal existence of sugar in blood, by Dr M. Abeles, Carlsbad. III. A contribution on the structure of the cartilage of the Eustachian tube in man, by Dr v. Urbantschitsch, Vienna. IV. On the auscultation of the mouth and the buccal râle, by Dr E. Galvagni, Bologna. V. Contribution on the syphilitic papule of the genital organs, by Dr Vajda. (Pl. VII.) VI. Investigations on the relative

blood-pressure in the greater and lesser circulations, by Dr Hofnoki, Vienna. (Plates VIII.-IX.) VII. Contribution on the situation of the motor centres, by Dr C. von Schroff, jun. VIII. On a congenital malformation of the male genital apparatus, by Dr E. Zuckerkandl. (Pl. X.) IX. Further contributions to the histology of tendons, by A. Spina, Vienna. (Pl. XI.) X. On tumours of the spermatic cord in the newly born, by Dr J. Englisch, Vienna.

I. The valedictory address of the veteran professor of Pathological Anatomy has here the place of honour. The good wishes of all who know his work will follow him in his retirement.

II. **The Presence of Sugar in the Blood** (*Abeles*).—The question as to the existence of sugar in normal blood is answered by this author in the affirmative. He finds in blood from all kinds of vessels a substance which gives the characteristic re-actions of grape sugar. It reduces copper, develops carbonic acid with yeast, gives a compound with potash, which, when decomposed by carbonic acid, is again capable of reducing copper and bismuth. It appears that the substance is present in the veins of all parts in nearly the same quantity, but is slightly less in the arteries. It is not more abundant generally in the right heart than in the portal vein, so that it looks as if it had not necessarily its source in the liver. This is still more probable from the fact that after simultaneous ligation of the abdominal aorta, vena cava inferior, and vena portæ, sugar was still found in the blood of the right heart, even though the blood was taken from the heart 36 minutes after the ligation. The liver is therefore not the only source of the sugar. It may be in part produced by muscle, which, as well as the liver, contains glycogen.

IV. **Buccal Rales** (*Galvagni*).—On placing the ear near the mouth of patients we often hear a fine mucous or crepitant râle. The impression at first is that this râle originates in the larynx, so great is its purity and intensity; and it is often difficult to convince people that it has its source in the finer bronchi or lung substance. But various considerations lead to this conclusion. The râle may be heard in cases where similar râles are to be detected by auscultation; and though the buccal râle is in these cases drier, sharper, and of higher pitch, still the characters of the mouth as a resonance-

chamber are sufficient to account for this. Again, these sounds are sometimes inaudible on auscultating the trachea, although loud enough near the mouth. They are also occasionally heard when no râle can be found by ordinary auscultation of the chest. The reason of this may be that, in these cases, the râle originates in the central parts of the lung, and is damped before reaching the chest wall, the lung-tissue being a bad conductor—or the râle may at its seat of origin be a very weak one, but reinforced by the resonance-cavities of the mouth and trachea, just as Helmholtz's resonators reinforce tones. The shape of the mouth as a resonator will thus have an important effect on the character of these râles. This is further manifested by the fact that the same râle has a different sound when the person breathes through the mouth or the nose. The author has observed these râles chiefly in cases of phthisis pulmonalis. They are loudest where cavities exist, but may be present in any stage. This sign is of great importance as a diagnostic means in the earliest stages, in which it may be the only sign present. Phthisical patients often refer spontaneously to the peculiar sound which they hear. The author has further observed it in one case of pneumonia and that a complicated case, but it is generally absent in this disease. It was present in four cases of capillary bronchitis, and one of acute tuberculosis with capillary bronchitis. He found it also in a case of pleuritic exudation, in which the sputum indicated the presence of some affection of the lung, but the exudation prevented its diagnosis.

#### VII. Motor Centres in the Spinal Cord (*Schroff*).—

The investigations detailed in this paper were undertaken in order to determine whether the cord is the seat of centres which command the respiration, the vessels, and the voluntary muscles generally. In respect to the last of these, it has been stated that the centres concerned in the production of general convulsions are seated in the pons Varolii or medulla oblongata. In these experiments rabbits and dogs were used, chiefly the latter, as they stood the operation better. The cord was divided between the atlas and axis, and the animal was kept alive for a good many hours by enclosing it in a heated box, and keeping up artificial respiration. At first the whole centres seemed to be paralysed, but after a time evidences could be obtained that there were still active centres in the cord severed from the medulla oblongata and upper ganglia. First, as to vaso-motor centres. Suspen-

sion of the respiration caused none of the usual elevation of the blood-pressure. But if after being suspended the respiration was resumed, a distinct rise occurred, so that there were centres in the cord still active. Secondly, as to centres of respiration. If artificial respiration were kept up for a time, and the animal then left, a few independent respirations were given. These soon failed, but their existence showed the presence of centres in the cord, capable of producing them. Then as to convulsions. Soon after the division of the cord there was no possibility of producing convulsions, either reflexly or by suspending the respiration. But after the respiration had been kept up for a time, general convulsions could be produced in either of these ways. In fact the reflex irritability seemed increased in some cases. The existence of centres of this kind in the cord seems therefore to be determined. It is noted, at the end of the paper, that muscular rigidity occurs very soon in animals treated in this way, often a little before death.

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TRANSACTIONS OF  
The Medico-Chirurgical Society.

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SESSION 1875-76.

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SECOND MEETING, 18th October, 1875—Dr Morton, President, in the chair.

Dr Yellowlees, Gartnavel; Dr David Foulis, Pathologist, Glasgow Royal Infirmary; Mr James Kelly, M.B.; Mr Archibald Sloan, M.B.; and Dr J. Simpson Cumming, all of Glasgow, were elected ordinary members of the Society.

*Dr D. Fraser, Paisley, read notes of a*

CASE OF EMPYEMA.

*Dr Gairdner* said that, having been consultant physician in the case, he could bear testimony to the extreme accuracy of the statement laid before them, and he had also to express his concurrence to some extent with the theoretical views to which Dr Fraser had given very lucid expression. The clinical aspects of the case had indeed been put before them with great accuracy of detail, but it would be difficult to convey to the Society the impression left on his mind of the intense anxiety with which the dangerous symptoms of the young lady were regarded from day to day, both by the

family circle and the medical attendants. It was impossible to rid one's self of the idea that the hectic fever and other allied symptoms might possibly betoken tubercular mischief. The balancing of arguments *pro* and *con*, with the heavy sense of responsibility in the case, gave an interest to it which it would not be easy for the members of the Society fully to realize. One point of secondary clinical interest had reference to the statements in regard to family history, and if these had been taken without minute scrutiny, their effects, in pointing to an affirmative conclusion in respect to tubercular danger, would have been much stronger than they were. She had a brother who died of heart disease, and one of the facts stated in regard to him was that he had had repeated attacks of hæmoptysis. But on this point he (Dr Gairdner) was able, from personal knowledge of the brother's case, to say that that symptom was referable to mitral obstruction. In regard to the theoretical aspects of the case, he was much interested in the question of the origin of the albuminous expectoration. It was an uncommon occurrence in his experience, though not unfrequently mentioned by French physicians, and in their cases it might be ascribed with some show of reason to the great pressure exerted in the operation of paracentesis. In the present case the operation was indeed performed, but the mechanical results were *nil*. There was nothing drawn from the chest, and the mechanical conditions of the chest and the fluid were left undisturbed. He was, therefore, driven to the conclusion that the albuminous expectoration was probably caused by some tendency to perforation—some leakage towards the lung. He had always been very cautious in cases of empyæma, in drawing off fluid, to stop long before the point of exhaustion was reached. The excessive exhaustion produced by the French operators he had always held to be a mistake, and he was not prepared even yet to accept wholly the theory which Dr Fraser had stated. It was important, however, to observe that in this case perforation occurred although the operation was necessarily incomplete, and failed to draw out fluid. He had seen cases in which rapid collapse and death had followed the discharge of purulent effusion. One such case he had seen not long ago. He had seen this happen in such a number of cases that when the alternative was presented to him in cases where the fluid could not satisfactorily be drawn off, and was on the point of penetrating into the lung, he had no hesitation in letting nature have her own way.

*Dr Renfrew* detailed a case of pneumo-thorax which had occurred in his practice, in which a very large quantity of fluid was drawn off by paracentesis repeatedly resorted to, the case ultimately resulting in complete recovery.

*Dr Cameron* said that in a previous discussion in that Society on the question of the advisability of paracentesis in cases in which fluid was present in the chest, he had drawn attention to two classes of cases, one of which was suitable for the operation and the other unsuitable. The former kind was somewhat analogous to a large abscess. A collection of pus tended to point in some of the intercostal spaces. In such circumstances, there could be no doubt that the proper treatment was to draw off the fluid at the spot indicated by the pointing. But in the other cases there was no tendency to point, though pus, there might be every reason to believe, existed in a large quantity. It was to this latter category that the case which formed the subject of discussion belonged. There was no tendency to point; but it was a case in which they had a feeling that something must be done, and done quickly. The operation was performed without chloroform. The patient was in a state of extreme hectic and great pros-

tration, but she bore the operation heroically. Their disappointment and disgust might be imagined when not a drop of pus followed. His impression from this case was strengthened, and in future he would be very chary in operating in cases of the same kind.

The *President* coincided with the view of Dr Cameron, as to the propriety of operative interferences in a case such as that under discussion. In these cases there was most likely some limited degree of pneumonia present at the commencement of the attack. In this instance the suppuration was in this lung previous to its appearance in the pleural cavity. In such circumstances there were generally adhesions. Cases of this kind usually ended favourable without operation, or in spite of operation, as in Dr Fraser's case. The matter found its way through the bronchial tubes, and was expectorated in large quantities. If there was great œdema in the lung in such cases, the plain rule was that the less interference the better.

*Dr Fraser*, in reply, said that his impression was that perforation had taken place very soon after the operation. They must have disturbed in some measure by their interference the contents of the cavity. Even the withdrawing of an ounce of fluid would permit some little expansion of the lungs to take place. He concluded by thanking the Society for the courtesy with which they had listened to his paper.

*Dr James W. Anderson* gave a report of a

CASE OF ASTHMA OF AN UNUSUAL KIND,

in which inspiration was perfectly free, while expiration was gradually impeded. The notes of this case will be published in the April number of this *Journal*.

*Dr Joseph Coats* enquired whether Dr Anderson had made a physical examination of the patient? (Dr Anderson replied in the negative.) Was it a case of bronchial asthma? Paralysis of the diaphragm would have quite an opposite effect to that exhibited in the present case, and it would be well if Dr Anderson, in the event of his seeing a similar case, would observe whether there was any spasm of the diaphragm. In reference to the diagnosis, it would be necessary to know whether there existed any laryngeal obstruction. There were cases in which the nerves of inspiration were not affected, while those of expiration were implicated.

*Dr Gairdner* said that a good deal of the interest of the case disappeared after the statement that there had been no physical examination. It was so necessary in such a case to have the facts perfectly clear, and this could be done only by examining the patient. As a matter of fact it was not uncommon in bronchial asthma to find expiration much more noisy than inspiration. The latter process was not, however, in these cases more difficult than the other, though it was more sonorous. The reason of this was that the vibration in expiration was from smaller tubes into larger, and reached the ear in a larger current; while also in expiration the tendency of the air was to the outside, and therefore more apparent to the ear. He thought the absence of exact physical observation in this case precluded the formation of any theory as to the nature of the case.

*Mr Wm. J. Fleming* said that possibly a statement of the mode of treatment adopted, and the results of the treatment, might throw some light on the case. The phenomena described by Dr Anderson were somewhat sug-

gestive of some aneurismal obstruction. He had lately seen a case in the Western Infirmary, under the care of Dr Coats, with symptoms somewhat similar.

*Dr Fergus* said that in regard to the diagnosis of the case, the mere fact that removal to the coast did not benefit the patient would not of itself negative the idea of hay asthma. His experience was, that the watering-places on the Clyde were often provocative of attacks of asthma, though the same result did not follow a residence at coast towns out of the Clyde valley. In regard to the special anomaly in this case, he had seen at least two cases in which expiration was more difficult than inspiration. In one of these he had made a *post-mortem* examination, when an aneurism was discovered involving the phrenic nerve. The other case was so similar in symptoms that he had predicted that on examination an aneurism would be found implicating an organic nerve; and this was found to be the case.

*Dr Anderson*, in reply, said that in regard to hay asthma he had not taken time to state his reasons for dismissing that affection as out of the question in the present case. The possibility of the presence of an aneurismal complication was equally precluded by the duration of the affection over a period of many years. He was quite aware that a physical examination would have been more satisfactory; but independently of such an examination, he had very closely watched the paroxysm and satisfied himself that inspiration was quite free. He had not only his own powers of observation to lead him to this conclusion, not only the patient's statement, but the fact that he never required to raise his shoulder, and that the position he found most comfortable was sitting in an arm-chair with his arms thrown over the back of the chair. In fact, the movements and position which would have indicated and been necessary in a state of impeded inspiration were conspicuously absent. With regard to the treatment he could not say whether the mode he adopted shortened the attack in any degree, though the patient said that it relieved him. The treatment consisted in the burning of nitre paper, smoking cigars of *Datura Stamonium*, and—what he believed was of more service—the administration of ethereal tincture of lobelia.

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THIRD MEETING, 5th Nov.—Dr Morton, President, in the chair.

Mr Wm. Forrest, M.B., Glasgow, and Dr John Gairdner, Glasgow, were admitted members.

*Dr Alexander Patterson* read

SHORT NOTES OF THREE UTERINE CASES,

which will be found at page 23 of this number of the *Journal*.

*Dr George Buchanan* said that, in regard to the second case, he was one of those who thought that the operation of occlusion of the vagina was one that should be more frequently had recourse to than at present. It was at all events a safe operation, and when the patient was somewhat advanced in years, he did not see why the operation should not be more frequently practised than it is. With regard to the third case, he had seen a case in which there was not even a *cul de sac*. The woman was married, and about 35 years of age. She had felt no distress from retained menses. The urethra occupied the position which it would have in ordinary circumstances.

The *President* enquired whether in the second case of *Dr Patterson*, the cavity was so laid open as to enable the operator to see any of the intestines.

*Dr Patterson* replied that he did not wish to see them, but he could have done so without any difficulty.

The *President* pointed out that this appeared to involve an unnecessary danger in the operation—a danger that could be avoided by cutting through the upper part of the uterus. No doubt surgeons were now much less afraid than formerly to open the peritoneum.

*Dr Gray* said that it was now a common thing, in cases of polypi, simply to remove them with the scissors or knife. There was no danger or difficulty in the matter. In respect to the second case, he agreed with *Dr Buchanan* that occlusion of the vagina, in suitable cases, was an operation successful in its results. In regard to the third case, he had been consulted not long ago by a young servant girl as to the propriety of marriage in her case. She had doubts of her being “like other women,” and on examination he found a very small *cul de sac* in lieu of the vagina, while he satisfied himself by examination by the rectum that no uterus existed. His advice to her was not to marry.

*Mr John Reid* demurred to the correctness of *Dr Gray's* statement in regard to the facility with which fibrous tumours could be removed from the uterus. His experience led him to believe that in many cases they were not so easily removed, and he gave an example in point. The procedure recommended by *Dr Gray* might be easy and successful in cases of simple gelatinous tumours, or simple polypi, but was not so suitable in fibrous tumours. With regard to the operation of occlusion of the vagina, it was limited in its application to cases over fifty years of age. He had found that in one case of *procidencia uteri*, the introduction of a pessary completely prevented the recurrence of the incident, and that pessary was worn without inconvenience or discomfort for fifteen years. He had an opportunity of inspecting the parts after the woman's death, and found no ulceration or anything of morbid change attributable to the pessary.

*Dr G. Buchanan* said that *apropos* of pessaries he had seen a case in which a *Zwanke's Pessary*—one of an improved kind—had been worn for five years, and had found its way into the bladder. When taken out it was encrusted with calcareous matter from the bladder.

*Dr R. Scott Orr* read

TWO CASES OF HYDATIDS OF THE LIVER TREATED BY PUNCTURE,

and exhibited the echinococcus under the microscope. He also exhibited a specimen of hydatid cyst from the head of a sheep. See page 13 of this number of the *Journal*.

*Dr Maclaren* said that he had had one case of hydatids of the liver in the infirmary. In that case there was no doubt of the diagnosis from the gradual increase and peculiar feel of the tumour, and the fact that the general health continuing fair till latterly. It was agreed to tap the cyst, when about 100 oz. of fluid escaped. Three weeks later it was again punctured, and nearly the same quantity flowed out. The fluid, however, was not of that clear character described in typical cases, but of a creamy consistence and chocolate colour, and was loaded with cells. He thought he saw in the



liver exhibited by Dr Orr an explanation of the peculiarities of his case. In that liver there was one cyst lined with a dark-coloured membrane, and it was probable that the cyst in his own case was of that character, and that the fluid from this circumstance assumed the chocolate colour. After the second tapping symptoms of peritonitis appeared, which gradually subsided. The patient left the hospital, and passed through a very critical period at home. There was great pain and tenderness, and the fluid was discharged in immense quantity by the urethra. He got a little better after a time. The patient's present state was this: the discharge still continued to some extent, being more of the character of pus. The tumour over the liver still continued. He was improved considerably in the meantime, but the prognosis was doubtful.

*Dr Joseph Coats* said that in regard to the two specimens of parasites exhibited under the microscope, one from the human liver and the other from the head of the sheep, he very much doubted whether they belonged to the same species. The heads of the animals from the sheep were very much larger than those from the human subject—perhaps ten or twelve times larger. The hooks were also similarly larger, and the necks were different,—those from the cyst being long with transverse markings. The case from the sheep appeared to be in the parent cyst, while in those from the liver there was a variety of cysts—from the original cyst down to one removed three or four degrees in the series. These diversities would seem to indicate the non-identity of the two parasites.

*Mr John Reid* said that a well-known agriculturist, Mr Ballingall, was in the habit, 25 years ago, of trephining the skull of the sheep a little above the frontal sinus, and bringing out the cysts entire. He thus anticipated the medical profession in the treatment of this affection. He (Mr Reid) gave little weight to Dr Coats' reasons for thinking the human hydatid a different animal from that in the sheep. The fact that the one was found in the brain and the other in the liver would account for some diversities of form. With regard to these hydatids, attention had been given to the affection from the earliest times. Copland in his dictionary mentioned that Hippocrates had observed these cysts of the liver. Since that time hosts of authors had written on them, and he believed the affection was not so uncommon as some supposed. When a student, he had seen one case in the infirmary in which the disease was revealed by *post-mortem* examination.

*Dr Fleming* said he did not think the affection so rare in Scotland as Dr Scott Orr imagined, but they were only now in a better position for diagnosing the disease. He had seen not a few cases, which generally ended in abscess, in which the diagnosis of hydatids was not taken into account. He was inclined to doubt whether the hydatids from the sheep were taken from the substance of the brain proper. Their *habitat* was, rather, in the frontal sinus, at a point outside the dura mater, and it was a very curious question in what manner they got admission to that spot. It was noteworthy that one of the names given to the disease in the sheep was "stagers," which was also the familiar name of a serious disease in the horse; and the symptoms of the two affections were somewhat similar. This fact suggested the question whether the disease in the horse was not also due to hydatids about the brain. At all events the symptoms appeared to indicate a cerebral origin.

*Dr Alex. Robertson* pointed out that these parasites were sometimes found in the human brain. He had seen them on the surface of the brain. They were generally small, and did not pass into the brain substance, but were

attached to the membranes. Occasionally, echinococci were found in the interior of the brain.

*Dr Foulis* said that in regard to the point raised by *Dr Coats* as to the identity or non-identity of the parasites from the sheep and the human subject, the presence of calcareous bodies in both seemed to indicate that they were, if not essentially the same, very like each other. The fact of transverse striæ being found in the neck of the specimen from the sheep was merely indicative of the fact that the caustic potash used had slightly wrinkled the neck. That specimen also was not contained in the parent cyst, but in a daughter cyst—the parent cyst having been removed.

*Dr Knox* said that there were two kinds of “staggers” in the horse. One of these, usually called “stomach staggers,” was not a serious disease, and was amenable to treatment. The other kind, however, was, in his experience, always connected with some interference with the circulation in the brain. In cases which he had examined he had found tumours, evidently of a malignant character, in the choroid plexus, and the pituitary body enlarged to two or three times its ordinary size. It was very difficult, however, in view of this origin of the affection, to account for its intermittent character. *Mr Gamgee* had also found that the disease, especially in cart horses, was frequently caused by the pressure of the collar on the jugular vein. These cases generally occurred in the summer time, after great exertion.

*Dr Scott Orr*, in reply, said that believing as he did that *Dr Maclaren's* case was one of hydatids, from the fact of the cysts gradually shrinking, he would hope for the ultimate recovery of the boy. With regard to the frequency of the disease in Glasgow in the past, there was no doubt it had been recognised, but only from *post-mortem* appearances. It had very rarely been diagnosed during life. He well recollected cases which he had at the time failed to diagnose. The chief diagnostic symptoms were the slow progress of the tumour, along with the almost perfect health of the patient, and a peculiar tense feel of the tumour; and the question of the mode in which these parasites get access to the internal organ was somewhat difficult, but he believed it was through the circulation. They were found in the blood in the form of hæmatozoa, and deposited in the liver.

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FOURTH MEETING, 3rd Dec., 1875—*Dr Morton*, President, in the chair.

*Mr J. S. Nairne*, Queen's Park, and *Mr F. P. Chapman*, M.B., Cambslang, were elected members of the Society.

*Dr Eben. Watson* read

A CASE OF ANEURISM OF THE COMMON FEMORAL ARTERY, TREATED SUCCESSFULLY BY LIGATURE OF THE EXTERNAL ILIAC,

and also showed the patient.

*Dr Dewar* said that he had seen the case under treatment, and assisted *Dr Watson* at the operation. In using silk ligatures, it must be evident that it totally altered the character of the operation if it was done under anti-septic conditions. It was, in fact, no longer a silk ligature at all, but really one of carbolized wax. He had on three different occasions used such ligatures in tying the pedicle of ovarian tumours, and in every case without a

bad result. What became of the ligatures he did not know, but they were never seen. Catgut was a material of much the same unirritating kind as silk, though it was not so suitable for ligaturing vessels in their continuity. He did not think, however, that it liquified so soon as was generally believed. He tied the common carotid in one case, in which the patient died (from a cause wholly unconnected with the operation) two days and a half afterwards, when, on examination, the ligature was found perfectly firm. The efficiency of catgut as a ligature depended very much on the freshness and soundness of the ligature. These ligatures were often supplied to them in a half rotten condition.

*Mr John Reid* wished Dr Watson to say if he intentionally tied the ligature so tight as to cut through the vessel, or only sufficiently tight to stop the circulation, with the view of leaving the ligature in? If the latter, he was, in his opinion, correct in his practice. This was a very different practice from tying the artery and leaving out the ends of the ligature, expecting it to come away in due course. Dr Watson would be able to give them some idea in regard to the number of cases in which the iliac and femoral arteries had been tied, and with what results. He believed that the operation had, on the whole, been very successful as compared with the results in the treatment of other aneurisms. He was still very sceptical in regard to the effects of the so-called antiseptic treatment in which Dr Watson had evidently some faith.

*Dr Fergus* said that in a case of his in which Mr Lister was called in consultation, that surgeon tied the external iliac artery under similar antiseptic conditions to those detailed by Dr Watson. This was the first time the ligature was left in the wound. The ligature was of silk, and had been steeped in carbolic acid some time previously. The patient recovered without a bad symptom. The lady subsequently died of thoracic aneurism, and on *post-mortem* examination they found some filamentary fibres—in fact the *debris* of the ligature. There were no traces of the twisting of the silk.

*Dr Menzies* inquired what were the points of difference between catgut and silk? They were both animal substances, and it occurred to him that if the former was absorbed, the latter might equally be absorbed.

*Dr Hugh Thomson* said that, as a student of Professor Lizars, he remembered that that eminent surgeon was in the habit, in cases of amputation, of cutting short both ends of the ligature. In a great many cases the ligature never came out at all. If there were five or six ligatures in the stump, only about a half of them came out. These were silk ligatures, not of course carbolized. Lizars was an advocate of union by the first intention, and therefore he recommended this plan of cutting short both ends of the ligature, and taking the chance of them coming out. He (Dr Thomson) suspected that silk was in some way absorbed as well as catgut.

*The President* said that instances had occurred of ligatures of all kinds being enclosed in wounds, and never having appeared at all. He had seen this occur in his own practice in the case of an ordinary hempen ligature. In the records of surgery they would find a number of instances recorded in which the ligature had been closely watched for, and yet had never been seen. In cases of amputation, or open wounds, it was possible enough that they might have escaped observation; but in cases of aneurism they could make pretty sure that the ligature would not escape notice.

*Dr Watson*, in reply, said that he could not give the statistics of cases of ligature of the iliac artery. These had been very numerous, though in Glasgow the cases had been comparatively rare. That was the first time he had had the opportunity of tying the external iliac. But he could not agree with *Mr Reid* that the operation had been generally a successful one. In what he might call pre-antiseptic times it was looked on as a very doubtful operation, and a large proportion of the cases died. With regard to the question whether he deliberately tied the artery to a certain tightness, and no more, his reply was that that would be a difficult thing to do. It was a most important question whether catgut ligatures were trustworthy or not in the continuity of the artery. That they were so in amputations did not imply that they were equally so in the continuity of the artery. *Dr Fergus* had mentioned another case—(*Mr Lister's*)—of a successful result of the operation by carbolized silk, making with *Mr Holmes's* cases and his own three cases of the kind. In *Dr Dewar's* case he thought it very likely that, had the patient lived, the operation by catgut ligature would have been successful. Others had not been so successful. *Mr Spence*, of Edinburgh, had an unsuccessful case of ligature of the carotid by catgut, in which the ligature gave way. The prejudice, or at least the feeling in London, was very great against the use of catgut in the continuity of the artery. It must be admitted that the results of the practice were at least uncertain, and he believed that the carbolized silk ligature was much preferable. Speaking for himself, he would not now use the catgut ligature.

*Mr Robert Grieve* read

CASES OF PLACENTA PRÆVIA,

the discussion on which was adjourned. The paper and the two parts of the discussion will appear together in the next number of the *Journal*.

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## Glasgow Pathological and Clinical Society.

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THIRD SESSION, 1875-76.

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FIRST MEETING, October 12th, 1875.—The President, *Dr W. T. Gairdner*, opened the session by a retrospective glance at the work done by the Society since its formation two years ago, and made some suggestions as to keeping the Society strictly to the basis of its constitution as composed of working members.

*Dr William Macewen* showed a patient who was shown to the Society as a case of multiple ANEURISM, in March, 1875. (See Vol. VII., page 415,

of this *Journal*.) He had then a small aneurism of the left femoral, and a large one implicating the upper part of the right femoral and lower part of the external iliac. The latter measured five inches, both in a transverse and longitudinal direction, over the surface of the tumour. Its anterior wall was thin, and at one place it seemed as if only the skin and a very thin layer of the sac intervèned between the finger and the circulating blood. At the Society pressure was advised, failing which galvano-puncture was recommended. The treatment adopted was as follows:—Tincture of steel was administered in small but gradually increasing doses till 20 min. every four hours could be tolerated. This was done with the view of putting the blood into a state favourable for coagulation. After preparatory treatment, pressure was exerted on the common iliac by means of Lister's abdominal clamp for twenty-four consecutive hours, but without any marked result. Pressure was again resorted to both above and below the aneurism for a period of four or five hours each day for over a fortnight. On one occasion after the pressure was removed the pulsations were found to have ceased, but the contents of the sac were quite fluid and the pulsations shortly after returned with their usual force. Besides this, the patient, being anxious, employed the clamp himself on several occasions. Towards the end of the fortnight he became very tired of the treatment, and, as no apparent improvement ensued, it was given up. On 13th April, at twelve p.m., pressure was put on the common iliac until the pulsations in the sac had entirely ceased. A steel needle of very fine calibre was then introduced into the sac, and passed down until it was felt to touch the opposite side of the sac. It was left in that position for ten minutes, when the point was cautiously directed upward, and after some time downward, then laterally. At the end of two hours it was removed. Pressure was maintained with the finger for four minutes over the point of puncture. The pressure on the common iliac was gradually removed about ten to fifteen minutes after the needle had been withdrawn. The walls of the sac then seemed firmer. Next morning (twelve hours after) the walls felt distinctly firmer and more solid, and this solidifying gradually increased centripetally until the 18th inst., when the tumour had become completely solid and the pulsations had stopped. The limb was swathed with flannel and patient was kept in bed, but the limb did not lessen greatly in temperature, and the swelling and discolouration were not so great as what was expected. On the 28th April he had been up, and, though against orders, he walked nearly half a mile. He afterwards went to the Highlands. As now shown to the Society, the pulsation had ceased for six months, and he had been at work regularly for some time, and could walk about pretty freely. Dr Macewen said that he did not mean to deduce anything from a single cure; but the question to be considered is whether the needle introduced acted as a foreign body, and so produced coagulation; or whether the latter was merely coincident with the cessation of the pulsation, the cessation being wholly or in part attributable to pressure; and further, in those cases of aneurism treated by

galvano-puncture, how much of the coagulation is due to the galvanism, and how much to the presence of a foreign body?

*Dr Donald Fraser* showed a patient suffering from ADDISON'S DISEASE, and gave the following history:—A young man, aged eighteen years, employed as a scourer; was brought to me by his father, who was beginning to get alarmed at the discolouration of the boy's skin. He was not aware that there was anything else wrong, but complained of his son's increasing laziness and stupidity. There is a dark brown discolouration over the whole skin. The face, neck, and hands are as dark as those of a Hindoo, while in the axillæ, about the navel, the inside of the thighs, the penis, and scrotum, the tinge is, if anything, even deeper. There are well-marked bluish black stains on the lips, gums, and mucous membrane of cheeks. There is well-marked deepening of the pigmentation of choroid. (In the opinion of *Dr Reid* there is staining of the retina.) His hair has got darker also. The discolouration was first noticed, about eighteen months ago, on the lips, and a little later about the navel, which he used to scrub diligently, under the impression that his skin was dirty. At that time he felt well and strong. His employment consisted in moving yarns backwards and forwards in a bath, the weight being about 14lbs. This he managed easily when he first went to the business, about two years ago. About a year ago, when his strength began to give way, his weakness was considered by his father to be laziness. His tongue is clear and free from any staining; bowels regular; appetite, on the whole, good; he never suffers from either nausea or vomiting; urine rather abundant, pale in colour, of low specific gravity, depositing almost no sediment, and free from albumen; pulse 80, small and soft; heart sounds normal; lungs normal, the R.M. being, however, rather feeble. There is an anæmic bruit to be heard in veins of neck. He complains of palpitation on running or going upstairs quickly. He attends at his work for about eight hours a-day, doing, however, very little. He has not lost much flesh since he became ill. His weight in 1871 was 8st. 4lb.; in 1874, 7½st.; at present, 8st. He is entirely free from lumbar or other pains. He has had no giddiness, nor any symptoms of nervous disturbance. He has been slightly deaf since his sixth year. His family history is very good. He informs me that a brother, aged twelve years, has nervous twitchings of the face when he speaks. A microscopic examination of the blood shows the white corpuscles in about their usual ratio. He was a very active boy before his illness, taking a great deal of open-air exercise. There is no history of strain or injury likely to induce the disease.

*Dr Cameron* showed a doubled-bladed PENKNIFE, two and a-half inches long, which had been swallowed, on the 24th May last, by an infant eight and a-half months old, and passed on the 27th August last. The blades were in great part gone, and the tortoise-shell back of the knife had entirely

disappeared. With the exception of dark stools, doubtless due to the steel, nothing unusual was observed in the state of the child from first to last.

*Dr Joseph Coats* then showed a preparation of ANEURISM OF THE AORTA, involving the recurrent laryngeal nerve. He mentioned that the patient had been admitted to the Western Infirmary with symptoms of acute laryngitis, with profuse expectoration and considerable dyspnoea. There was a distinct syphilitic history, cicatrices in the neighbourhood of the nose, and coppery stains on the legs. The patient, in great part recovered, was able to go about the ward and grounds without any difficulty. After a time he began to complain of recurring attacks of dyspnoea, beginning early in the morning, and disappearing again in an hour or two. These were relieved by chloral. One morning a severe attack occurred quite suddenly, and the patient was soon moribund, from obstruction apparently in the larynx. It was noticed at this time (the first occasion in which such a spasm had been observed), that the obstruction seemed to be almost entirely in expiration. As a last resort, tracheotomy was performed, but without advantage, and the patient died in a few hours. On *post-mortem* examination a small aneurism was observed arising from the transverse portion of the aorta, and projecting upwards and backwards. It was adherent to the roots of the great vessels by its anterior wall, and to the trachea by a portion of its posterior wall. It bulged into the left side of the trachea at its lower extremity, but not sufficiently to cause serious obstruction. The mucous membrane over the swelling was very red, and the redness extended into the finer bronchi, which contained a frothy and bloody mucus. The left recurrent nerve was adherent to and partly imbedded in the posterior wall of the aneurism, its fibres being somewhat stretched and expanded. *Dr Coats* dwelt on the fact of the obstruction being in this case chiefly in expiration. It seemed difficult to account for this unusual condition, except on the supposition that the irritation of the recurrent nerve may have caused a spasm of the muscles which close the glottis during each expiration.

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SECOND MEETING, November 9th, 1875.

*Dr George Buchanan* showed a ROUND CELLED SARCOMA, of which specimens were prepared and shown under the microscope by *Dr Foulis*. About four months ago, the patient, a man of about 30, noticed a small swelling, the size of a bean, in his right cheek. It continued to increase in size, growing inwards, till it assumed the size of a hen's egg, bulging into the mouth. It was soft and elastic. *Dr Buchanan* removed it by a horizontal incision on the inside of the cheek—enucleating it from its containing capsule. The wound healed in a fortnight. A week after, it re-appeared—much as on the first occasion, but in a fortnight it had become much

larger, extending back inside the mouth as far as the finger could reach. Dr Buchanan removed it a second time, this time taking an oval section of the mucous membrane, involving the old cicatrix. The tumour was easily turned out from its containing cavity. Now, however, the finger in turning it out was passed much further back than on the first occasion, the growth invading the cheek and extending behind inside the coronoid process of the lower jaw.

*Dr S. H. Wright* showed a specimen of STRANGULATION OF THE BOWEL.

*Dr Robertson* showed a female patient, age 27, with RIGHT HEMIPLEGIA, and paralysis, or impairment of function of some of the cranial nerves of the same side. The patient had led an irregular life, and the disease was probably syphilitic in its origin, though there was no distinct evidence of constitutional syphilis. The paralytic symptoms were preceded during about four months by severe pain above the right eye. This pain was of a beating character, was constant, and was not aggravated at night. Then she suddenly lost the power of the right arm, which was followed in two days by an apoplectic seizure. She became completely unconscious, and states that she has no recollection of anything for nearly four months afterwards. Speech is now all but perfect, but for two years it was greatly impaired, though whether the defect was in language or in articulation does not now appear. There have been no convulsive movements during her illness. At present the right arm is contracted, wasted, and much impaired in power, and she drags the right foot very markedly in walking. There is no sense of smell in the right nostril. At first there was complete ptosis in the right eye, but now it is only partial. She cannot turn the right eyeball upwards nor downwards, nor rotate it in any direction, but she can turn it inwards to the full extent, though she cannot evert it so completely as the left one. The right pupil is slightly dilated. There is some opacity of the cornea in the affected eye, so that a satisfactory ophthalmoscopic examination cannot be made. None of the other cranial nerves seem to be implicated. There is no difference in the axillary temperature of the two sides. The intellect is clear, and there is no emotional weakness except a slight disposition to laugh too readily. The heart, arteries, and kidneys are sound. There is no history of rheumatism. Dr Robertson considered that the disease was of syphilitic origin, and that there had been chronic inflammation of the membrane at the anterior part of the base of the brain on the right side, involving the first, the third, the fourth, and probably the sixth nerve to a slight extent. There had been, he thought, a lesion also of the left side of the brain, probably in or near the corpus striatum. This, judging from the prolonged unconsciousness and other symptoms, seemed due to an effusion of blood, perhaps from the rupture of an artery. There was a difficulty, however, in accepting the idea that lesions of both sides of the brain, at some distance apart, should have occurred in a young person simultaneously or nearly so, as the history appeared to indicate.



*Dr Robertson* brought before the Society a woman, age 60, who presented some of the characteristic symptoms of ADDISON'S DISEASE. For nearly two years she had suffered from cardiac palpitations, and during the last eight months, about twice a week, had been subject to seizures which began with beating at the heart, and gradually ascended to the head, when she became giddy and would tumble if not assisted, but never actually lost consciousness. She feels cold even in warm weather, and the axillary temperature is only 97·8. She is now easily exhausted by very moderate exertion. She also complains of pain and weakness in the lumbar region of the spine. About nine months ago, observed that her skin was becoming dusky, but it did not give her much concern, as she was always of a dark complexion. The discolouration is most marked on the trunk, particularly the lower half of the back and over the pubes. There it is greyish black, and pretty uniform, though somewhat speckled. The hands and arms are only slightly affected, and the face though dark is not materially involved. The mucous membrane of the mouth is now deeply stained, broad bluish-black bands extending from near the angle of the mouth on each side to the soft palate, this latter presenting numerous black spots, as does also the membrane of the hard palate, though to a less extent. There is a narrow band on each side of the dorsum of the tongue, extending from, but not implicating, the point to the base. The vagina had been examined, but its membrane presented its ordinary tint. *Dr Robertson* considered that the constitutional symptoms, the state of the mucous membrane of the mouth, and the back-ache, even though the discolouration of the skin was not so well marked on parts where it is usually present in typical cases, warranted the conclusion that its patient laboured under the disease in question, and that this was corroborated by the absence of all indications of organic affection of the leading organs, except a small amount of bronchitis. In connection with this case *Dr Robertson* showed another female patient whose skin on the body was discoloured, as deeply or nearly so as the one just described. There was no other symptom of Addison's disease however, and as she admitted that her underclothing had generally been dirty for years, and as she laboured under chronic bronchitis and probably also constitutional syphilis the discolouration was attributed to these causes.

*Dr Robertson* showed a BRAIN WITH A FALSE MEMBRANE under the dura mater on the upper and lateral surface of each hemisphere ; it did not extend to the base. It was of considerable thickness, even more so than the dura mater at some parts. There was a blood clot about the size and thickness of a penny in the portion covering the left frontal lobe, and a similar one behind in the part investing the posterior lobe of the same side. The membrane had very slight attachments either to the dura mater or arachnoid. The pia mater was not morbidly adherent to the surface of the brain. There was about 6 oz. straw-coloured fluid under the dura mater, between it and the arachnoid, but its exact relations to the adventitious structure

could not be determined. The brain weighed 36 oz. The arteries at the base were slightly atheromatous. Dr Robertson referred to the two views entertained respecting the mode of formation of such membranes—the one being that they were the product of inflammation, and the other that they resulted from the organization of effused blood; and while expressing the opinion that they may be formed in both ways, thought that the specimen submitted to the Society had been developed in the latter mode. The patient was a woman age 57, and had been insane for about 2½ years, the form of disorder being dementia, which latterly was of a low type.

*Dr Robertson* also showed an AORTIC ANEURISM, communicating with the trachea, from a man 45 years of age. Death had been almost instantaneous, having been preceded by a large gush of blood from the mouth and nostrils.

*Dr David Foulis* showed a specimen illustrating the results of LATERAL LITHOTOMY in the female. The patient, who had been operated on 20 years before her death by Dr Andrew Buchanan, died of renal dropsy. On examining the site of the operation, a conical opening was found in the left labium minus, which led into a canal. This canal passed backwards and inwards, opening into the urethra just in front of the sphincter vesicæ. Patient had been able to retain her urine perfectly well—the sphincter preventing any involuntary escape. At one part of the canal the vaginal part of its wall was wanting for about  $\frac{3}{4}$  inch. The lining of the canal, and the covering of the openings was smooth mucous membrane. The wall of the bladder thickened: its interior smooth and glistening: no signs of irritation from calculi.

*Dr Foulis* also demonstrated the TEST FOR AMYLOID SUBSTANCE BY METHYLANILINE, or violet of Paris, introduced by M. V. Cornil. (*Progrès Medical*, 25th Sept., 1875.) Sections of amyloid liver, kidney, and spleen, cut by freezing section cutter, were shown under the microscope in illustration of the test, and the delicacy and precision of the result demonstrated. Dr Foulis explained that he had used the method in a variety of cases of very varying disease, and that the result showed the accuracy of M. Cornil's remarks. In every case the tint given to the tissue was violet blue, while any amyloid particles were dyed of a distinct violet red, quite distinguishable under the microscope.

*Dr D. Fraser* showed a TUMOUR removed on 23rd Oct., 1875, by Dr Geo. Buchanan from the right groin of a very muscular and in other respects very healthy young man (age about 23 years). From the same situation there was removed a similar tumour five months before. Thirteen months before the removal of the first tumour from the groin, one the size of a lemon was removed from the right ischio-rectal fossa. A large and deep wound was made by its removal, which granulated up well and

quickly. The scar still looks healthy. This first tumour had a very cancerous appearance. The interest of this case turns upon the recurrence, in a different part of the body, of a distinctly malignant tumour. The young man is a very healthy looking and powerful fellow.

*Dr Joseph Coats* showed a TUMOUR OF THE MAMMA, which was chiefly remarkable because while at one part it was soft and had the usual characters of soft cancer, at another part it was hard, and had the appearance of scirrhus. The microscopic characters agreed with this, and the inference drawn was that there is no specific difference between the two forms, but the names are applied merely for convenience.

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## Medical Intelligence, &c.

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EXTRA-MURAL LECTURES.—*Dr Hector C. Cameron* lectures on surgery this session in the Clinical Lecture Room at the Royal Infirmary. His course is now recognized by the University Court as qualifying for degrees, and we understand he has an excellent class. We are informed that the University Court, at a recent meeting, agreed to recognize the course of lectures on surgery, delivered at the Andersonian University, by *Dr James Dunlop*. We presume that the recognition of all the other lecturers at the Andersonian will follow in the course of time, as well as of any other extra-mural lecturers who may be able to gather classes, and we sincerely congratulate the University Court on a step which, while it will give new life and vigour to the teaching of medical science in Glasgow, will neither affect prejudicially the University itself, nor lower the standing of its professors.

THE CHAIR OF PHYSIOLOGY IN GLASGOW UNIVERSITY.—Many of our readers would be much pained to read in our contemporary, the *Glasgow Herald*, a letter from the venerable professor of physiology, complaining of the usage he had received at the hands of the students and certain of his fellow-professors. We must confess that we are not enamoured of the means taken by the students to oust *Dr Andrew Buchanan* from the chair which he has so persistently held through evil and good report, even if the demonstration was purely spontaneous on their part (as was no doubt the case); and we sincerely sympathise with the learned professor in his resentment at the treatment he has received. At the same time, it has long been a serious defect in the University teaching that the lectures on physiology have been delivered in such a manner that the students could not take notes, or, indeed, gain any knowledge whatsoever of that important

subject; and we consider it to be a matter of regret that the University Court did not take the matter in hand many years ago, by requesting Dr Buchanan either to lecture so that he could be heard, appoint some one to lecture in his place, or make room for another occupant of the chair. If this had been done, there would now be no occasion for the daily papers to discuss the "Rowdyism of Glasgow Medical Students." We trust that since Dr Buchanan has expressed his intention of resigning at the end of the present session, the scandal will speedily blow over, and that the students will at least pay such respect to grey hairs and known ability as to keep decent order for the few months of the session which remain. We have no doubt that Dr Buchanan's colleagues will readily forgive him the angry thrust contained in the concluding sentence of his remarkable letter, as we are sure he must already regret the use of such strong language. We believe that Dr E. Watson and Dr J. G. M'Kendrick have already announced their intention of applying for the vacant chair; Dr William Stirling of Edinburgh and Dr Arthur Gamgee of Manchester are also spoken of as possible candidates, and we have no doubt we shall hear of others before the end of the present session.

WESTERN INFIRMARY OF GLASGOW.—The First Annual Report of this valuable institution, which has just been published, will be read with interest by most of our subscribers, and especially by those engaged in hospital work. Notwithstanding that the ordinary expenditure has exceeded the ordinary income by nearly £1400, we think the managers have every reason to congratulate themselves on the financial position of the institution, especially as, from the success of their expedient of raising a supplementary fund, they commence their second year with nearly £2360 in hand. We do not think the expenses of maintenance at all excessive, although, no doubt, they will compare unfavourably with those of the Royal Infirmary, for, in a new institution, incidental expenses are necessarily heavy, and judicious economy is only learned after some little experience on the part both of managers and officials. It seems to us, however, that 10 per cent. is rather a large proportion to pay for the collection of subscriptions, and the salaries of secretary, clerks, &c., represent even more than this percentage; indeed if we include the cost of printing, stationery, &c., we shall find the total will amount to fully 14 per cent. of the subscriptions and donations received. The total number of patients admitted during the year was 1408, and of these 155 remained in hospital at the end of the year, so that 1253 was the number treated; of these 113 died, giving a mortality over all of about 9 per cent.; but if we deduct 17, who died within 24 hours, the mortality is reduced to 7.76 per cent. We believe that this is a little below the average mortality of general hospitals throughout Great Britain; but we have not sufficient statistics at hand to make an accurate comparison. The deaths after operation were few in number, being only 13 in 235, or 5.5 per cent., which is no doubt a remarkably low figure, but the number

is not sufficiently large to make the statistics of much value. With the exception of the list of operations, a table of the accident cases, and particulars of those diseases or injuries which caused the death of patients within 24 hours after admission, we are given no information as to the nature of the cases treated; and we do not regret this omission, if it may be taken to indicate that the physicians and surgeons contemplate publishing in a separate volume their experience during the past twelve months. We are glad to learn that new wards have recently been opened, and that the third physician and third surgeon have now entered upon regular duty.

WHAT OUR FRENCH FRIENDS THINK OF US.—Those who visited Edinburgh during the meeting of the British Medical Association, will read with interest the graceful and appreciative description of the proceedings now being published as a *feuilleton* in *La France Médicale*, and written by Dr Noel Gueneau de Mussy. The worthy doctor makes a few curious slips, as, for instance, where he speaks of being on Carlton Hill, and looking down on the windings of the *Clyde*, but is generally both accurate and interesting. Moreover, he does not confine himself to medical matters, but discourses on all things which impressed themselves on his mind during his visit to Great Britain. Thus in the last number he has a digression on the bagpipes, and the difference between Scotch and Irish national music, and a philosophical treatise on public dinners. His description of the toast-master at the London banquets is very amusing, and will bear transcribing. He says, "I missed at Edinburgh a person called, I believe, the *toast-giver*, and who caused me much amusement in London. Clad in a special costume, and of exceptionally low stature, he made the glasses to tremble in the immense hall of Lincoln's Inn, when he cried the toasts with intonations and recommendations appropriate to the object thereof, and (with certain exceptions) concluding with the injunction to refill our glasses."

INTERNATIONAL MEDICAL CONGRESS.—The Medical Societies of Philadelphia have taken the initiatory steps for the formation of an International Medical Congress, by the appointment of delegates from their respective bodies, who were empowered to organize and perfect a scheme for the above purpose. In accordance with the authority thus given, the delegation has organized the *Centennial Medical Commission*, with the following officers:—President, Samuel D. Gross, M.D., LL.D., D.C.L., Oxon; Vice-Presidents, W. S. W. Ruschenberger, M.D., U.S.N., Alfred Stillé, M.D.; Recording Secretary, William B. Atkinson, M.D.; American Corresponding Secretaries, Daniel G. Brinton, M.D., William Goodell, M.D.; Foreign Corresponding Secretaries, Richard J. Dunglison, M.D.; R. M. Bertolet, M.D.; Treasurer, Caspar Wister, M.D. Arrangements have been made for the holding of the Congress in the city of Philadelphia, to begin on the 4th and to terminate on the 9th of September, 1876. The Commission

propose the following general plan for the organization and business of the Congress:—I. The Congress shall consist of delegates, American and foreign, the former representing the American Medical Association and the State and Territorial Medical Societies of the Union; the latter the principal Medical Societies of other countries. II. The officers shall consist of a President, ten Vice-Presidents, four Secretaries, a Treasurer, and a Committee of Publication, to be elected by the Congress at its first session, on the report of a committee of nomination. III. The morning sessions of the Congress shall be devoted to general business and the reading of discourses; the afternoons to the meetings of the sections, of which there shall be nine, viz.:—1, Medicine, including Pathology, Pathological Anatomy and Therapeutics; 2, Biology, including Anatomy, Histology, Physiology and Microscopy; 3, Surgery; 4, Dermatology and Syphilology; 5, Obstetrics and Diseases of Women and Children; 6, Chemistry, Toxicology and Medical Jurisprudence; 7, Sanitary Science, including Hygiene and Medical Statistics; 8, Ophthalmology and Otolaryngology; 9, Mental Diseases. IV. The language of the Congress shall be the English, but not to the exclusion of any other language in which members may be able to express themselves more fluently. Gentlemen intending to make communications upon scientific subjects will please notify the commission at the earliest practicable date, in order that places may be assigned them on the programme. In order to impart to the Congress a thoroughly international character invitations to send delegates will be extended to all the prominent Medical Societies in Europe, Mexico, the British Dominions, Central and South America, the Sandwich Islands, the East and West Indies, Australia, China, and Japan. Invitations will also be tendered to gentlemen of high scientific position, and distinguished visitors may be admitted to membership by a vote of the Congress. Among the advantages arising from such a convocation as this, not the least important will be the opportunity afforded its members for the interchange of friendly greetings, the formation of new acquaintances, and the cementing of old friendships. All communications must be addressed to the appropriate Secretaries.

PHYSIOLOGICAL ACTION OF GELSEMINA.—Dr J. Ott, of Philadelphia, gives the following summary of the physiological effects of this much-lauded cure for neuralgia:—1. In cold-blooded animals it paralyzes, first, the sensory ganglia, and then the motor ganglia in the central nervous system; this order is reversed in warm-blooded animals. 2. It diminishes the pulse and pressure. 3. This decrease of pulse-rate is due to lessened irritability of the excito-motor ganglia of the heart. 4. The fall of pressure is due to diminution of cardiac irritability and vaso-motor tonus. 5. It decreases the respiration through a paralyzing action on the respiratory centres. 6. It dilates the pupils. 7. It reduces the temperature.—*Medical and Surgical Reporter*, Dec. 11, 1875.

## O b i t u a r y .

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### THE LATE DR NAISMITH, OF HAMILTON.

THE following notice of Dr Naismith, who was well known to very many of our subscribers, appeared in the *Hamilton Advertiser* of August 21st, 1875:—

“Our obituary to-day contains a name which claims more than a passing notice, for in Dr Naismith there has gone from among us one of our most valued townsmen, and one whose loss will be most sincerely deplored. Although the nature of his illness, which withheld him from his professional duties for several months, did something to prepare us for the blank he has left, still, till very lately, there was hope that a life so valuable would be spared, and his years seemed to promise many more. The appointments held by Dr Naismith brought him acquainted with a wide circle, who, while they admired the conscientious discharge of his public duties, could appreciate something of the high estimation in which he was held in his private practice, and of the love with which he was regarded by his more intimate friends. His professional attainments were of an order that would have commanded success in any sphere, and for nearly twenty-three years the poorest in this parish had at his hands skill and kindness, than which more could not be purchased by the wealthiest. In writing of Dr Naismith we are sensible of being controlled by that spirit of modesty which was a marked feature of his character; but we only take the estimate which has been formed of him by his friends, his professional brethren, and the public generally. In his last and painful illness he was sustained by the strength which had carried him through much hard work, and had upheld him in the premonitions of his malady. Dr Naismith was a member of an old and well known Hamilton family. He took his degree of M.D. in 1847, from the University of Glasgow, of which he had been a distinguished student, and in 1848 he was admitted a member of the Royal College of Surgeons of England. He was a Fellow of the Faculty of Physicians and Surgeons of Glasgow, and a member of the Glasgow Medico-Chirurgical Society. At the time of his death he was medical officer of the Hamilton Police Commissioners, the Hamilton Parochial Board and Combination Poor-house, and in his earlier professional years he filled the office of House Surgeon in the Glasgow Royal Infirmary.

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### BOOKS, PAMPHLETS, ETC., RECEIVED.

- Anatomical Rooms; Plan for their Construction, Ventilation, and Hygienic Management. By H. Lenox Hodge, M.D., Demonstrator of Anatomy in the University of Pennsylvania. Richmond. 1875.
- Tinnitus Aurium, or Noises in the Ears. Second Edition, with cases. By Laurence Turnbull, Ph.G., M.D. Philadelphia: J. B. Lippincott & Co. 1875.
- Clinical and Physiological Researches on the Nervous System. No. 1. On the Localisation of Movements in the Brain. By J. Hughlings Jackson, M.D. (Reprinted from the *Lancet*, 1873). J. & A. Churchill. 1875.

- A Study of the Normal Movements of the Unimpregnated Uterus. By Ely Van de Warker, M.D. (Reprinted from the *New York Medical Journal*, April, 1875.) New York: D. Appleton & Co. 1875.
- Some Remarks on Paracentesis of the Chest. By Henry Barnes, M.D. (Reprinted from the *Practitioner* for September, 1875.) London: Macmillan & Co. 1875.
- Man. The General Principles of Medical Climatology, and their Application to the Climates of the South-east and South-west of France. By Sir Alexander Taylor, K.B., M.D., F.R.S.E. London: J. & A. Churchill. 1875.
- On Addison's Disease: being the Croonian Lectures for 1875, delivered before the Royal College of Physicians. By Edward Headlam Greenhow, M.D., F.R.S. London: Longmans, Green & Co. 1875.
- A System of Midwifery, including the Diseases of Pregnancy and the Puerperal State. By William Leishman, M.D. Second Edition. Glasgow: James Maclehose. 1876.
- The Anatomy of the Lymphatic System. By E. Klein, M.D. II.—The Lung. London: Smith, Elder & Co. 1875.
- Lectures and Essays on the Science and Practice of Surgery. By Robert M'Donnell, M.D., F.R.S. Part II.—The Physiology and Pathology of the Spinal Cord. Dublin: Fannin & Co. 1875.
- A Practical Treatise on Disease of the Eye. By Robert Brudenell Carter, F.R.C.S. With numerous illustrations. London: Macmillan & Co. 1875.
- En Anatomisk Beskrivelse af de paa Over og Underextremiteterne forekommende Bursæ Mucosæ. Præbelønnet afhandling af A. S. D. Synnestvedt, Stud. Med., Udgivet ved Dr J. Voss, Professor i Anatomie. Christiania. 1869.
- Bidrag til Lymfhekjertlernes normale og pathologiske Anatomi. Af G. Armauer Hansen. Med 5 Plancher. Christiania. 1871.
- Discussions on Syphilisation in the Medical Society of Kristiania. Extracted from "Nordiskt Medicinskt Archiv." Kristiania. 1869.
- Indberetning til det Norske Medicinske Selskab i Christiania om en med Understøttelse af Selskabet foretagen reise for at Anstille Undersøgelser angaaende Spedalskhedens Arsager. Af G. Armauer Hansen. Christiania. 1874.
- \* \* The four last works have been forwarded by the Secretary of the Royal University of Christiania.
- The Introductory Lecture at the Opening of the London Hospital Medical College for the Winter Session 1875-6. By W. Bathurst Woodman. London: Wertheimer, Lea & Co. 1875.
- Milk in Health and Disease. By A. Hutchison Smee, M.R.C.S., &c. London: Printed by Edward Newman. 1875.

## CORRECTION.

In the summary of Dr Fergus's paper, read at the first meeting of the Medico-Chirurgical Society, in the last number of the *Journal*, page 554, line seven from bottom, for "acid" read "gas."



THE  
GLASGOW MEDICAL JOURNAL.

April, 1876.

Original Articles.

I.—LECTURES ON CLINICAL MEDICINE.

By Dr M'CALL ANDERSON, *Professor of Clinical Medicine in the University of Glasgow.*

III.—ANEURISM OF THE ABDOMINAL AORTA.\*

GENTLEMEN,—In an earlier part of this course I directed your attention to the subject of aneurism of the thoracic aorta, with special reference to its treatment by means of electrolysis; this morning I propose dwelling for a little upon the subject of aneurism of the abdominal aorta, in connection with the case of a patient who at present lies in Bed 3 of Ward II.

This man† is 22 years of age, an iron moulder, and was admitted on the 23rd of October, 1874, complaining of pain and swelling of the abdomen of three months' duration. His father died at the age of 40 of an obscure tumour in the stomach, and his mother at 30, of fever, while his only brother is 21 years old, and enjoys good health.

He has followed his present occupation for twelve years, and, with the exception of an attack of rheumatic fever four years ago, has never ailed at all. His diet has always been fair, but for the last six years he has indulged largely in stimulants.

\* Delivered in the Western Infirmary of Glasgow, December 4, 1874.

† Reported by Dr Charles J. Plumer.

Three months prior to admission he began to complain of a dull aching pain in the epigastric region on rising in the morning and on lying down at night, which disappeared, however, if he lay upon his right side, and was always relieved by stooping. A month after this it disappeared altogether for a couple of weeks, but then returned with redoubled vigour. Contrary to expectation he found the pain relieved by exercise, but it was worse at night after a hard day's work than after a day of rest. About five weeks before admission, the pain, which he attributed to flatulence, became worse, and in addition to the dull aching, he suffered from sharp pain shooting through from the epigastrium to the back and upwards between the shoulders. His appetite also began to fail, and a full meal sometimes caused vomiting, while on one occasion, six weeks before he came to the hospital, he vomited about two tablespoonfuls of blood. He had been drinking freely at the time, and thought that the hæmorrhage was due to his stomach being upset.

Since the commencement of his illness his bowels have been very costive. There has been no fever. He was treated for worms, for flatulence, for enlargement of the liver, &c., but without any benefit.

These errors of diagnosis must have arisen from carelessness or from the omission of a physical examination of the abdomen. This we made together the other day, and, if you remember, with the following result:—On placing the patient upon his back and exposing the abdomen, no alteration in its shape could be detected, but distinct pulsation in the epigastric region was observed. On applying the hand this pulsation was very distinctly felt, and was heaving in character. In this situation a tumour was detected, which was about the size of an orange, but more oval in shape, and on placing one hand upon each side of it, it was found to be the seat of expansion as well as of pulsation. On percussion, dulness was experienced, which corresponded with the situation of the tumour in the epigastric region, and which extended a little to the left of the middle line, while around it the percussion was everywhere tympanitic. On placing the stethoscope on the ensiform cartilage, the normal sounds of the heart were audible; at the umbilicus a single

systolic sound was heard, but over the tumour a distinct systolic murmur. Here let me warn you, in passing, not to press the stethoscope too firmly against the abdominal walls, as the compression of the aorta in a state of health may call forth a murmur which may be mistaken for a morbid sound. These symptoms and physical signs which have just been enumerated point to the conclusion that there is an aneurism of the abdominal aorta shortly after its passage through the diaphragm. In many of the cases of aneurism of the arch of the aorta, which you may have seen, valvular murmurs are heard resulting from atheromatous degeneration of the valves, and similar degeneration is frequently detected in the coats of the superficial arteries; but in our patient the valves and the coats of the vessels are apparently healthy. This, however, does not alter my opinion of the nature of the case, and for this reason, that aneurism of the arch of the aorta generally occurs in persons who are getting up in years, who are generally nearly 40 years of age or upwards, and as a consequence of degeneration of the arterial walls, whereas aneurism of the abdominal aorta is very apt to occur in young persons as the result of violent exertion, such as young adults are prone to indulge in, or of injury, and in whom the arterial coats are perfectly sound.

So much for the symptoms which have special reference to the tumour itself, and which are often termed the *direct symptoms*, but others are usually present, which are dependent for the most part upon the pressure of the tumour upon neighbouring parts, and which are often termed the *indirect or pressure symptoms*. Let us dwell for a little upon these. In some cases of aneurism of the abdominal aorta there is, as you can readily understand, a retardation of the pulses in the lower extremities, but this symptom was not present in our patient, for the pulses in the radial and femoral arteries beat simultaneously. In aneurisms in the epigastric region the heart is often displaced, a feature which was noted in this case, as the apex of the heart was found to be somewhat elevated and beating to the left of the nipple. It was also observed that the patient was flatulent and that his bowels were very costive, conditions which often characterize cases of aneurism, and which are due

to pressure upon, and interference with, the functions of the colon. It occasionally happens that the spermatic artery is pressed upon, thus diminishing the supply of blood to one testicle and leading to atrophy of that part, or that the renal vein is compressed, inducing passive congestion of the kidney with its results, scanty, high-coloured, albuminous urine; but in our patient the testicles were normal, and the urine quite healthy. Sometimes the aneurism presses upon the vena cava and interferes with the free return of blood from the lower extremities, producing œdema of these parts, or upon one of the iliac veins, thus limiting the œdema to one lower extremity. In this case there was no evidence whatever of interruption to the return of venous blood from the lower extremities. But the most constant of all the indirect symptoms is pain from pressure upon the nerves. The pain, which is oftenest complained of in the back and loins, and shoots downwards in the direction of the nerves pressed upon, is usually dull and persistent with paroxysmal exacerbations. It is generally aggravated by anything which excites the circulation, but is frequently relieved by change of posture, especially by standing erect or lying upon the belly, so as to alter the position of the tumour, and thereby remove the pressure from the nerves implicated. In our case there was pain at the seat of the aneurism shooting through from the epigastrium to the back and upwards between the shoulders. Though not aggravated during the day when hard at work, the pain was always worse on the nights preceded by a day of labour. It was generally relieved by lying on his right side or by stooping.

Bear in mind, then, that pain is the most constant indirect symptom of aneurism of the abdominal aorta; and further, that it is sometimes the only symptom present. Bantock\* has recorded a case of abdominal aneurism where the only symptoms were severe lumbar pain, attended with nausea. Death occurred suddenly, and on *post-mortem* examination an aneurism was found at the upper part of the abdominal aorta, which had eroded the bodies of the last dorsal and two upper lumbar

\* *Edinburgh Medical Journal*, Aug., 1862. Quoted from "A Year Book of Medicine and Surgery (Syd. Soc.), for 1862," p. 108.

vertebræ. Between two and three pounds of blood were effused into the abdominal cavity. I have, myself, met with two cases in which the only symptom noted during life was severe pain in the left iliac region. Let me give you the report of one of these in illustration.

A man, æt. 40, a shoemaker by trade, unmarried, was admitted into the Glasgow Royal Infirmary on 15th June, 1872. His family's history was not bad, and his diet had always been good, but his habits were, from time to time, irregular.

When a young man, he suffered from palpitation, which was ascribed by his medical adviser to bathing too often in the sea. He enlisted in the 42nd Highlanders, and joined his regiment in the West Indies, where he had repeated attacks of "liver complaint" and dysentery, and one attack of Asiatic cholera. He also suffered from ophthalmia, which was very rife in the regiment (420 men having been attacked).

For four and a half years he was quartered at Bermuda, and after that at Halifax, where he enjoyed excellent health. During the Crimean campaign, however, he had repeated attacks of dysentery. He was afterwards in India during the Indian Mutiny, when, with the exception of slight attacks of ague, he remained in good health, and in 1870 he was discharged on full service pension, and became a shoemaker.

In the middle of April 1872, he began to complain of severe pains in the left side, below the floating ribs, which confined him to bed for fifteen days, and from which he partially recovered under medical treatment. On the 4th June, however, it became as bad as ever, so that he was obliged again to take his bed.

On admission into the Hospital on the 15th, his only complaint was of severe pain in the left lumbar and iliac regions, extending over the hip and shooting down the leg. Owing to the pain he had great difficulty in turning or moving, and he inclined to sit up in bed supported by pillows, as this posture gave him most relief. My assistant who examined him, in my absence, reported that the internal organs were healthy. He derived some relief from the use of fomentations, and from the subcutaneous injection of morphia.

On the 29th June, after partaking of his evening meal, he fell asleep, and at 9.30 P.M. was found dead by the nurse.

The *post-mortem* examination was made by Dr Coats on the 2nd July. The surface of the body was extremely pallid. The internal organs were pale, and the heart, which seemed to be quite healthy, was almost devoid of blood. The aorta, throughout its whole length, was extremely atheromatous, and, on a level with the diaphragm, a large aneurism was detected, which was partly within the thorax, but principally in the abdomen, and which communicated with the aorta by an elongated aperture in its posterior wall,  $2\frac{1}{2}$  inches long and about  $\frac{1}{2}$  an inch broad, its margin being very irregular. It projected about an inch to the right of the middle line, and three or four inches to the left.

At the upper part of the aneurism, which projected into the thorax, an aperture, about the size of a fourpenny piece, obstructed by a clot of blood, and which communicated with the left pleural cavity, was discovered. This cavity contained an immense quantity of blood, the solid clot, apart from serum, weighing 1 lb. 12 ounces. The left lung was much compressed, but otherwise normal. The right lung was healthy, but firmly adherent.

At the lower part of the aneurism, at the left side posteriorly, and below the diaphragm, another orifice was detected, which communicated with a large quantity of coagulated blood situated between the peritoneum and the abdominal walls. This coagulum stretched from the diaphragm to Poupart's ligament and spread behind the kidney, where it formed a thick layer. The anterior surface of three or four of the upper lumbar vertebræ was markedly eroded. The liver was fatty, the kidneys anæmic, and the spleen rather larger than usual.

The other patient referred to presented very similar symptoms, and, from those and other cases, I can thoroughly endorse what has been so well stated by Walshe,\* that "whenever obstinate abdominal neuralgic pains exist, especially in a

\* A Practical Treatise on Diseases of the Heart and Great Vessels. By Walter Hayle Walshe, M.D. London: Smith, Elder & Co., 1873. 4th ed., p. 525.

male, and where the ordinary signs of visceral disease cannot be established, aneurism should be held in view as very probably present, even though there be no physical sign to warrant such an opinion. Let the examination never be complete, however, without careful auscultation in the left vertebral groove." One qualification to this statement, however, requires to be made, and it is this, that the pain, in order to justify of itself a strong suspicion of aneurism, must be LEFT-SIDED (the aorta being situated to the left of the middle line), for obscure pain in the right side is generally due to a different cause. The following illustration of pain in the right lumbar and iliac regions came under my notice in 1872, and it is not the first of the kind which I have met with:—A woman, aged 60, married, was admitted into my Female Ward in the Glasgow Royal Infirmary on 1st July. Three weeks previously she began to complain of severe pain in the right hip and right iliac region, which gradually increased in severity, and was paroxysmal and smarting in character. About a fortnight before coming into the Hospital, a vesicular eruption, extending from the middle line behind, to near the middle line in front, and crossing over the hip, made its appearance, and on her admission a few crusts and discoloured marks of this eruption, which had all the appearance of the remains of an attack of shingles, were still apparent. Adduction of the limb occasioned great pain, but other movements of the hip gave rise to no uneasiness. The right iliac region was tender on pressure, but otherwise normal. She slept badly; her pulse was 92 and soft; there was no fever; her tongue was coated, and her appetite bad, but she had no sickness, and her bowels were reported regular. On 7th August fever, great tenderness and pain of an inflammatory character in the right iliac region, and the other usual signs of localised peritonitis, were discovered, and on the following day at 2.30 P.M. she died.

On making a *post-mortem* examination, a pint of deep red fluid was found in the cavity of the peritoneum. The lower two feet of the ileum to within an inch of its junction with the cœcum, was deeply congested and distended with gas and fluid fœces. The vermiform appendix was firmly adherent to the peritoneal surface of the ileum immediately above the congested

part, and the whole of the congested portion of the ileum had slipped beneath the vermiform appendix and become constricted. In the absence of evidence of obstruction of the bowels it was quite impossible during life to form a reliable opinion as to the nature of the lesion which gave rise to the pain. Some time ago I saw, in consultation with Dr J. G. Wilson, a patient who presented symptoms very similar to, and anatomical lesion almost identical, both as to situation and character, with those which I have just mentioned.

While, therefore, in cases of obscure abdominal pain of a neuralgic character, we should suspect the existence of aneurism when the pain is in the left lumbar and iliac regions, when it is on the right side we should rather suspect the existence of some other lesion such as obstruction of the bowel.

Before passing on to the diagnosis of abdominal aortic aneurism, let me say that while difficulty of swallowing and implication of the pupil are common symptoms of thoracic aneurism, they are very rare in aneurism of the abdominal aorta. When dysphagia does occur it must be due to reflex irritation, and when implication of the pupil is observed, Seaton Reid thinks it may be dependent upon traction of the great splanchnic nerve. He has recorded an interesting case in which an aneurism, springing from the cœliac axis, separated the diaphragm from the pleura, and gave rise apparently to contraction of the right pupil.

*(To be concluded.)*

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## II.—A CASE OF A PECULIAR FORM OF ASTHMA.

By Dr J. W. ANDERSON.

*(Read before the Glasgow Medico-Chirurgical Society.)*

IT is not my intention to give any formal report of this case, but rather, in the shortest possible way, to bring out the important peculiarity or peculiarities which characterised it, and made me think it worthy of being recorded. The patient is a young gentleman in business, 25 years of age, of average height and weight, and looks like a man in the enjoyment of more than average health. I was called to see him one evening lately, about nine o'clock; found him suffering from an attack of asthma at that hour of no great severity, and, at his urgent request, waited till about midnight with him. I soon noticed that his position in the chair was not the usual one, and learned further that he had never adopted any of the customary plans to assist respiration—notably that of raising the shoulders; and, in answer to a direct question, he informed me that he had no difficulty whatever in drawing in his breath, and never had. By this time—say between ten and eleven o'clock—he was in considerable distress; face flushed, and covered with a slight amount of perspiration, veins of forehead prominent and conjunctivæ injected; these and other symptoms to such an extent as indicated, considering the terrible nature of the disease at its height, not an extremely severe, but we might say a moderately severe attack, and yet, as we have said, he had no difficulty whatever with inspiration. Now, as it is the rule that in asthma expiration is more prolonged than inspiration, that, as Hyde Salter says, "There can be no doubt that the difficulty of getting the air out of the chest in asthma is much greater than that of getting it in," the case is not worthy the attention of the Society for a moment, unless I can show, on the one hand, that the attack of asthma was really a severe one; and, on the other, that inspiration was not comparatively merely, but absolutely free. As regards the attacks, for the last eight years, at least, they have been

invariably severe. When the very first indication of the fit is felt, he never ventures to go to bed, but sleeps, or attempts to sleep, in an arm-chair. I saw him myself about the height of the spasm, and can testify to the great distress he was in—the symptoms I have indicated above being much more pronounced; and his own view of the case was certainly a serious one, as he led me afterwards to infer that the reason he asked me so urgently to remain with him for some time was that he feared the issue of the impending fit. So far as regards the severity of the attack. But it is most important that I should show that inspiration was *perfectly* unrestricted; for if so, then the case is one that, so far as I know, stands quite by itself. Well, then, when he was breathing with great difficulty, but not at his worst—for then I did not like even to speak to him—I said, “Now, can you draw in your breath quite freely?” He said “Yes,” and took a full inspiration at once. I saw it was taken quite freely, while the increased difficulty of expiration immediately following, with an increase also in the characteristic wheezing which he always had with expiration, showed me that the inspiration had been *full* enough.

As already noticed, the ordinary rules for giving the patient most relief do not apply to him. He never requires to raise the shoulders, or adopt any plan calculated to assist inspiration in any way; and on my asking him, for the last time, if he is perfectly sure he had no difficulty in drawing in his breath, as if my persistency had made him unusually guarded, he replied, “Well, not so far as I am aware.” I may add further, that the easiest position for him, when the spasm is at its height, is sitting upright on an ordinary chair, with his arms down over the back.

There is, however, another peculiar feature in the case, perhaps almost as interesting. His attacks—for the last ten years, at least—have been always, and only, in the months of July and August. “Hay asthma,” you will say; but I think it can hardly be called that. So far as he knows, hay has nothing to do with it. He has never had coryza or bronchitis with the fit; and the best treatment for hay

asthma—I mean as regards the alleged cause—removal to the seaside, in place of curing, rather aggravates the affection in his case.

I offer no theory as to the particular morbid condition that determines such a peculiar and unusual form of the disease. I have only reported it, because—so far as I am aware—the case, as regards the absolute freedom of inspiration, is perfectly unique.

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### III.—CASE OF INTUSSUCEPTION—SLOUGH OF A PORTION OF BOWEL—RECOVERY.

*By Dr JOSEPH COATS, Glasgow.*

DAVID A., aged about five years, was a ruddy, healthy child at the time when the following attack occurred. He was brought to me by his mother, on the 6th of May, 1875, on account of frequently-recurring pains in the abdomen. These had existed, more or less, for a fortnight; but the boy was otherwise well—appetite good, bowels regular. On the 8th the pain had increased in severity and frequency, and the patient was confined to bed. The pain was referred to the region of the umbilicus, both at this time and throughout the attack. On the 9th, very definite symptoms of obstruction ensued, and a swelling was detected in the abdomen. The bowels, which had been previously regular, had been confined from the morning of the 8th; there was vomiting, and a peculiarly anxious and shrunk appearance of the countenance. The swelling, detected for the first time on the morning of this day, was situated in the left hypogastric and inguinal regions. It had an elongated oval shape, and lay parallel to Poupart's ligament, extending inwards as far as the middle line, and outwards up into the lumbar region. The swelling was dull to percussion, and generally soft and doughy to the feel; but, on manipulation, it was observed—both at this time and frequently afterwards—to gather itself together, and become firm and hard.

On this day the condition was so urgent that a surgeon was called to see the boy, with a view to a possible operation, should the urgent symptoms continue. The swelling was so definite, and its situation so near the surface, that it would probably have been easy to find the obstruction on opening the abdomen.

The symptoms of obstruction continued all through the 9th, but the condition rather improved; and on the 10th, the bowels were moved, and the vomiting ceased.

From that date onwards, for nearly a month, the symptoms were, with little alteration, the following:—There were very frequent spasms of severe abdominal pain, recurring sometimes every ten or fifteen minutes, sometimes every hour, with rarely a longer interval. With every “pain,” as his mother got instinctively to call the spasm, there was generally a slight discharge from the bowels. The matter discharged was chiefly a somewhat fluid mucus, with a trace of fœces. Each motion was not very large, but, considering the frequency, it must have reached a considerable amount in the twenty-four hours. On three or four occasions a trace of blood was observed, but never anything but a trace; once or twice a small quantity of pus was found in the motion. On the 16th, signs of exhaustion showed themselves, but, with brandy in small doses every hour, he again rallied. About the 23rd fever supervened, the temperature reaching  $103^{\circ}$ , and continued for a fortnight. During all this period, the patient was fed with raw eggs and brandy, milk and beef-tea. Latterly he was able to take some minced meat in the middle of the day. Small doses of morphia were used to relieve the pain.

On the 30th, an Edinburgh surgeon saw the case, and he found on examining, per rectum, that a distinct tumour could be felt projecting downwards towards the anus, and within easy reach of the finger. It had been noticed for some time that the anus was remarkably patent.

On the 7th of June, the patient's condition being very much the same, his mother observed that when up at stool “something had come down which did not look like the bowel, but

rather a mass of corruption," and on the 8th I was just in time to see a brown gangrenous mass slipping up within the anus. It was stated that the mass had projected to the extent of six or seven inches, and was slowly returned, apparently slipping up and down with wonderful facility.

On the evening of the 9th June it did not return, but remained down till the morning of the 10th, when a part of it came away. On examining the part expelled, it was found to consist of a complete ring of gut, only about an inch in length, but evidently involving the entire thickness of the bowel. The fragment was in an intensely fetid state. After its discharge, there presented at the anus, without projecting beyond it, a ragged, raw-looking surface.

For three or four days after this the patient's condition improved continuously, the appetite became better, the bowels were less frequently moved, and the motions contained less mucus. On the evening of the 14th I was sent for, as the bowel had come down and remained so. I found a mass lying outside the anus, as large as the closed fist. It tapered towards the inferior extremity, and at the apex a distinct aperture was seen, from which fœces issued. The edges of this aperture were rather raw, and the tissue puckered around it. The general surface of the mass was red, without a trace of slough, but with a few superficial erosions. It was pretty firm to the touch, and, to judge by the feeling, was composed of a considerable bulk of tissue. The mass was with some difficulty returned.

On two subsequent occasions the mass again protruded, but was easily returned by the patient's mother. The patient after this made a gradual recovery, but, as late as the middle or end of July, the tumour in the left inguinal region was still present, and not perceptibly altered. It should be mentioned that about the 23rd of May another tumour was observed in the left hypochondrium, having very much the shape and size of the kidney. This remained accessible to the touch for a few days, and then gradually fell back into the lumbar region, and disappeared. The swelling in the inguinal region could, in the earlier periods, be readily moved to a limited extent upward towards the umbilicus.

After the end of July I did not see the patient till the 26th of September, at which date I found him in nearly the normal state of health. The extreme emaciation and pallor which had developed during his illness were gone, and he was again the ruddy healthy child he had been before. On examining the abdomen not a trace of tumour could be found anywhere. The bowels were regular.

*Remarks.*—The narrative of this case is almost sufficient of itself without any further observation. That we had here a case of intussusception no one I think will doubt. The existence of the elongated tumour in the inguinal and hypogastric regions, as well as its contracting on irritation, were sufficient of themselves; and then we had the invaginated mass projecting from the anus, and a part of it sloughing off. The calibre of the intussuscepted portion was at one time obstructed, but it must have been very soon re-established. The constricted bowel appears to have been in a state of recurring spasm for more than a month, the frequent griping pains referred to the umbilical region being the most distressing feature in the case.

About a week after the discharge of the dead portion of gut, a condition of the urine showed itself which is not without interest. Immediately after being passed, and while still warm, I found that it contained numerous minute glistening bodies floating about, which turned out to be hedge-hog crystals of urate of soda. These formed very rapidly a bulky precipitate, and as they existed in the urine immediately after it was passed, they must have been formed in the bladder or kidneys. The urine also contained a few tube casts, some hyaline, some epithelial, and some distinctly granular. There was a very faint trace of albumen present. The existence of these crystals in the urine as passed, along with the presence of tube casts, and a trace of albumen suggests that they originated in the kidneys, where, by the sharp processes, they may have irritated the tubules. This condition passed off in a few days, and did not seriously interfere with the course of the case.

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## IV.—CASES OF PLACENTA PRÆVIA.

By ROBERT GRIEVE, L.R.C.S., Edinburgh.

(Read before the Glasgow Medico-Chirurgical Society.)

THIS paper contains a short account of all the cases—six in number—of placenta prævia which have occurred in my own practice, with some remarks, chiefly of a practical nature.

I shall use the terms *placenta prævia*, *placental presentation*, and *unavoidable hæmorrhage*, according to common acceptation, viz., to denote those cases in which the after-birth is implanted, either completely or partially, over the os uteri, or so close to it that dilatation thereof must of necessity result in the separation, to some extent, of the one from the other, with consequent hæmorrhage.

*Case I.*—My first case occurred December 17th, 1850. I had then held my diploma for only seven months, and consequently my experience was very limited. My patient was a Mrs B., 33 years of age, in humble circumstances. She was in her sixth labour, and had been ill for fourteen hours when I was called to attend. I found her suffering from excessive uterine hæmorrhage, and complaining of great weakness. The os uteri was in a thoroughly relaxed state, and was felt to be partially encroached upon at the left side, by a thick, spongy, roughish substance—the placenta. I immediately ruptured the membranes, and at the same time administered ergot and whisky. The head, which presented, was then forced down through the os, very slowly, but so as to check the flooding. After being in labour eighteen hours, being four after I was in attendance, she gave birth to a still-born female child. Her recovery was satisfactory, but slow. My notes make no mention of hæmorrhage as having been present during the latter period of pregnancy, but I have no doubt that this was due to the imperfect way in which I noted my cases during the early period of my practice, and consequently I now think that this case formed no exception to the general rule. I

consider myself to have been singularly fortunate in having had such an easy case for my first. In fact, after discharging the liquor amnii, the case became one of ordinary labour, and I had no extra duty to perform whatever. In the second stage the progress was slow, so the question is, should not the forceps have been had recourse to with the view of shortening labour by an hour or two? At that time I had never used these instruments, and therefore did not feel much confidence in my ability to employ them successfully; but even yet the rule of my practice is, that when labour is progressing, although very slowly, to let nature alone. The death of the child, I conceive, was due solely to the loss of blood. Had the case been seen at the outset, it is highly probable that by plugging after dilatation and rupturing the membranes, its life might have been saved.

*Case II.*—At 2 a.m., June 29, 1855, I was called to attend Mrs W., aged 45 years, wife of a working mason. She was in labour of her eighth child. I found her a large, stout-built looking woman, lying in a pool of blood, a stream of which having passed through the bed was flowing from under it across the floor to the opposite side of the room. She was in a state of syncope, quite pulseless at wrist, and her entire surface was covered with cold perspiration. She never spoke, there were no uterine contractions nor pains of any kind. Strange to say there was no whisky in the house, and though sent for urgently, it was long in being got. I examined *per vaginam*, and found the placenta lying there quite detached from the uterus, the os completely dilated, and a shoulder presenting. I at once passed my hand onwards into the womb without exciting the slightest contraction, turned and brought away a large still-born male child. I administered ergot, and also whisky as soon as it could be procured, or I should rather say tried to do so, for she was then unable to swallow, and expired in less than an hour from the time I entered the house. I could not ascertain when labour had commenced, but was told that she had been flooding for weeks, and in expressing my surprise at not having been sent for to the case sooner, the husband



replied that he had spent two hours searching for my house before he found it, although (having been previously engaged to attend) he was in possession of my card with my correct address, and could have got me quite readily in five minutes, so these two hours at least were lost: how many more I cannot say. This was the most frightful case of flooding that I ever witnessed. The presentation was about the worst that could have happened: had the head, breech, or feet come down the result might have been different, at least to the mother. The fact of the expulsion of the placenta shows that there must have been vigorous uterine action, but with such a presentation it could not possibly have been of any avail. Of this poor woman's eight children I learned that, including this present one, five were still-born; one had survived two hours, and the other two died very young. I could get no information regarding the cause of death in any one instance. Altogether a very deplorable case; her whole family of eight having predeceased her.

*Case III.*—Mrs M., aged 36 years, wife of a fishmonger's salesman, was seized with labour pains July 3, 1865. Being from home, Mr Lind attended in my absence. He found that she was in her fifth labour, and that she had suffered from copious uterine hæmorrhage for about six hours prior to his visit. As there was little dilatation of the os, and but slight pains, he thought it best to plug the vagina and os uteri, twelve hours after which I saw the case, and found that the hæmorrhage had been greatly restrained. On removing the plug I felt the edge of the placenta on the left side of the os, and also the pulsation of the funis. As the liquor amnii was evacuated, the os pretty well dilated, and the hæmorrhage recurring somewhat profusely, I resolved to turn, and did so immediately with the greatest ease. The child, a female, was pale and flaccid, but after a little posturing and friction, it soon breathed and cried feebly; however, it was unable to take the breast, and died four hours after birth. The mother made a good enough recovery.

*Case IV.*—My fourth case was that of Mrs S., aged 42 years, wife of a jobbing mason. She was a pale, thin, exhausted-looking woman, and had suffered from uterine hæmorrhage for three weeks, for which she had been under treatment. On the 18th May, 1867, I was requested to visit her, as she was becoming gradually weaker, and feeling somewhat faint. She was near the full term of her seventh pregnancy, and had felt slight labour pains for an hour before I saw her. The os uteri was but slightly dilated, about the size of a penny, or so, through which the placenta was felt presenting. As the flooding was still going on, and the debility increasing, I resolved not to temporize. I therefore had recourse to turning, which was effected with the utmost ease, a still-born male child being the result. She made a very good recovery, only getting a little whisky during and after labour. In this case, as well as in the others, the death of the child was evidently due to the previous hæmorrhage. The turning in all the above-enumerated cases was easily accomplished, and any compression of the navel cord, which might have taken place, must have been of short duration.

*Case V.*—My next case occurred April 29th, 1871, in the person of Mrs D., aged 35 years, wife of a labourer, and judging from appearances, in very poor circumstances. I was not engaged to attend, but was urgently entreated to do so, as she had become so alarmingly ill, that the friends and neighbours who were waiting upon her had all gone off in a fright, save one, who threatened to do the same unless medical assistance was instantly procured. I found her a small slender woman, in her fifth labour, but at this time only in the seventh month of pregnancy. She was suffering from very profuse uterine hæmorrhage, which I was told had been going on for some days. She was almost pulseless, and presented all the symptoms of impending collapse. \* The os uteri was pretty well dilated, but how long it had been so, or how long labour had been going on, I could not learn. The placenta, which presented, was felt to be detached to a considerable extent from the cervix. I immediately turned with-

out any difficulty, and brought away a still-born male child, and a very small affair it was. I administered ergot and whisky, but she never rallied; had great difficulty in swallowing, and by and by vomiting set in, and continued for nearly twenty-four hours, when she died. She had ice to suck, sinapisms over the stomach, opiates, &c., but without affording any relief.

*Case VI.*—The subject of my sixth and last case was Mrs W., aged 43 years, wife of a carter. On my first visit to her, October 4th, 1871, she informed me that she was on the eve of her eighth confinement, and that she had been subject to flooding for two or three days, every week, during the six weeks previous, during which time she had been living at Dunoon. She complained of great weakness, and had a pale anæmic countenance; but as she had no pains, and was not in bed, and the flooding slight, I deemed it inexpedient to examine her *per vaginam*. She was ordered to rest in bed, and to have Tr. Ferri. Mur. gtt. xx four times a day. I saw and heard no more of her till the 11th, exactly a week afterwards, when I was hurriedly called to her at 10.30 a.m. She still had no pains, and the flooding had ceased, but she had got a great fright, as she said, from the waters having come away. On examination I found the os uteri dilated to the size of half-a-crown, or so, and completely covered by the after-birth. On hooking the os to one side with my finger, it was felt to be very dilatable, yielding to the slightest traction. Here was a case, then, which I had got apparently in good time, but what was to be done? Was I to wait until active labour had further dilated the os, meantime plugging so as to arrest or moderate the inevitable hæmorrhage, and then to render assistance by turning or otherwise, when the patient had become further exhausted, with the certainty of having a dead child, and with great risk to the mother? My mind was too deeply impressed with the dangers attending delay, having lost two mothers out of five, one of them not six months before, and every one of the five children. Although both flooding and pains were absent, and there being no symptoms of labour present except the dilatation of the os

mentioned, I resolved to attempt turning at once, and having informed the patient, her husband, and friends present as to the nature of the case, and what was imperatively called for in the way of treatment, and having got their consent to do what I thought right, I introduced my hand through the os, separating the placenta from the uterine walls on the right side, where it was already partially detached by the fingers, as I reached them up in search of the feet, which were readily laid hold of. The turning and delivery were easily accomplished, with little loss of blood, and pains no worse than could have been expected from the irritation caused by the hand *in utero*. The child, a fine, healthy male, was all alive and kicking, requiring little attention from me, as it breathed freely and cried lustily. The placenta was expelled almost immediately. So rapidly and so easily did all this take place, that with the application of the bandage and the dressing of the navel included, I was not in the house more than thirty-five minutes altogether. But I must confess that it was not without some trepidation I left so soon, because of having a very important engagement to attend to. Immediately after she had liq. ergotæ  $\zeta$ ii and some spirits, and then she was ordered plain, nutritious diet. I saw her again in the afternoon, and found her wonderfully well. October 11th was a Wednesday, and so well was my patient on Thursday, Friday, and Saturday, that I omitted visiting her on Sunday. I saw her on Monday, and still she was going on favourably, so that I did not think it necessary to see her on Tuesday. On the following Wednesday, a week exactly after her delivery, when I expected that my patient would only require to be looked in upon once or twice more to find her up and all right, to my great chagrin I found her suffering from a pain in one of her legs, with much constitutional disturbance; and to make a long story as short as possible, allow me simply to state that she had an attack of phlegmasia dolens, first in one leg and then in the other, followed by a severe attack of bronchitis, which, along with a want of many ordinary comforts, and even necessaries, both as to bed, board,

and nursing, rendered her case as unenviable a one as anyone could wish to have charge of. Ultimately, that is, after five or six weeks' great suffering, she became convalescent. The child continued to thrive in spite of all kinds and degrees of bad usage. It never had a sufficient supply of breast-milk, and none at all after the first week, and in every other respect it was sadly neglected. He is now a fine stout boy, four years old. His mother, likewise, continues to enjoy good health. The late Dr James Steven, and also Dr Renfrew saw this patient oftener than once, and rendered me valuable counsel and assistance.

#### GENERAL REMARKS.

1. *Frequency.*—These six cases extended over a period of twenty-four years, giving an average of one in four, but they were very irregularly distributed. Thus, in my first year, I had my first case; in my fifth year, my second; my fifteenth year, a third; seventeenth year, a fourth; and in my twenty-first year the two last cases occurred within six months of each other.

These six cases occurred in an aggregate of 4270, giving an average of 1 in 711. From a statistical table compiled by Churchill, showing the experience of a great many eminent obstetricians, it appears that a great diversity exists in regard to the frequency of this order of complex labour. Dr Joseph Clarke gives an average of 1 in 2500; Klein, 1 in 2282; Collins, 1 in 1492; Edinburgh Hospital, 1 in 1226; Ramsbotham, 1 in 602; R. N. West, 1 in 300; Birmingham Hospital, 1 in 162; and Richter, 1 in 124; the average of the whole being 1 in 915.

2. *The Mortality—Maternal.*—The table just referred to gives an average of 1 death in 3, precisely the proportion which obtained in my own cases, but had my patients, cases second and fifth, received proper medical aid, I have no doubt that their lives might have been saved; and this leads me to remark that those whose practice is chiefly confined to the more affluent and well-educated classes, and who are consulted in time, should be able to show a death-rate much

lower than that which I have been able to exhibit. Here, also, I may advert to the rate of mortality—1 in 13, which is said to have attended the practice advocated by the late Sir J. Y. Simpson—that of separating completely the already partially-detached placenta, leaving the subsequent expulsion of the child to nature, cases of preter-natural presentation excepted; which procedure, he alleges, arrests the hæmorrhage at once, and which hæmorrhage, he further alleges, does not proceed from the torn uterine vessels, but chiefly, if not entirely, from the detached portion of the placenta, through the portion still adherent to the uterus. In reference to this, Churchill says, “In justice to Sir James, it must be remembered that he does not intend that this plan should in every case supersede either the rupture of the membranes or turning the child;” but why not, Churchill does not explain, and I am at a loss to conceive, when he would, according to his own statistics, save 12 lives out of 13,  $92\frac{1}{2}$  per cent., instead of 2 out of 3, or  $66\frac{1}{2}$  per cent. Sir James recommends his plan in cases “when hæmorrhage is not restrained by milder means, such as the evacuation of the liquor amnii, but at the same time when turning or other mode of forcible delivery is hazardous, or impracticable, in consequence of undilated state of os uteri, or contraction of the pelvic passages; when the child is dead, premature or non-viable; in most primiparæ when the uterus is too contracted to allow of turning; when the mother is in such an extreme state of exhaustion as to be unable without immediate peril of life to be submitted to the shock and danger of turning or forcible delivery of the infant.” In reference to the foregoing, I beg to submit that even in cases of undilatable os uteri it is just as difficult and as dangerous to introduce the hand, so as to separate the whole placenta, as it is to turn the child; and besides, in many of these cases turning would still be indispensable to delivery, thus involving the dangers of a double operation, and the evils of unnecessary delay. And I may here state that such authorities as Denman, Lee, Rigby, Ashwell, Barnes, Churchill, &c., repudiate this theory of Simpson’s as false, and con-

demn his practice as mischievous. Moreover, I have no faith in his statistics, or in the way in which he has got them up; for instance, to get his mortality of 1 in 13, he jumbles together two very different conditions of things, and treats of them and reasons from them as if they were identical—viz., the spontaneous expulsion of the placenta by vigorous uterine action, and artificial separation of it with irritation and force applied to the cervix when there may be defective uterine action. His figures apply to these two conditions combined, but he does not tell how many are due to the one and how many to the other.

Then, in regard to those cases in which the mother is in a state of extreme exhaustion; the muscular structure of the uterus must be enfeebled, so what good could be expected either from the artificial or spontaneous detachment of the placenta? Would not the exhaustion be increased, and the woman run a great risk of dying undelivered? Forcible delivery would give the patient a chance, but merely separating the placenta would be to leave her to her fate.

Others, besides Simpson, explain his theory, by saying that it is in accordance with a physiological law, that when blood is not required for a part it is not sent to it; for example, that the death of the fœtus diverts the blood from the uterus, and averts hæmorrhage. Were this true, so soon as the child dies hæmorrhage should cease, but we know that hæmorrhage occurs when the child has been long dead, and we also know that there is such a thing as *post-partum* hæmorrhage. According to this theory, we must conclude that so long as the flooding continues the child is alive. But even admitting the operation of such a law, it does not follow that the artificial detachment of the placenta, whether prior or subsequent to the death of the child, would influence the circulation similarly to the death of the child from natural causes. We might as well expect that because the toes have fallen off from gangrene in a case of frost-bite without any attendant hæmorrhage, that their removal by the knife of the surgeon would be a bloodless operation.

Dr Barnes, who gives as his average death-rate 1 in  $11\frac{1}{2}$ , has propounded another theory concerning this class of cases. He says that "the first detachment of placenta arises from an excess in rate of growth, on the part of the placenta over that of the cervix, a structure which was not designed for placental attachment, and is not fitted to keep pace with the growth of the placenta. Separation from expansion of the os being a secondary matter." Admitting that the placenta grows more rapidly than the cervix uteri, does it necessarily follow that separation must be the consequence; as the placenta outgrows the cervix, will it not attach itself to the uterine walls, progressing nearer and nearer to its natural site?

How it is that Simpson and Barnes come to have such a low rate of mortality, as compared with others, I cannot understand. I do not think it can be due to their mode of treatment, but rather to the circumstance that they must have got their patients under treatment before much exhaustion had occurred from hæmorrhage. But I must say that I have little faith in statistics as being of any value in guiding us in practice; a detailed history of each case would enable one to judge more correctly, as to the best mode of treatment to be adopted.

*Infantile Mortality.*—The average infantile death-rate, according to Churchill, is 65 per cent. In my own practice it amounted to  $83\frac{1}{3}$ , and had it not been that in my last case I was induced to act with a decision and promptitude, or, if you will, with a haste quite exceptional, it is highly probable that I should not have been able to rejoice over even one saved. On the whole I am persuaded that the mortality to both mothers and children, especially the latter, is simply frightful. But why is it so? Speaking from experience, and for myself alone, I have no hesitation in ascribing it in a great measure to undue delay, and in many cases I should say culpable delay, in procuring medical aid. In every case, when I could get any reliable information on this point, there was previous flooding for days and sometimes weeks. However, it is not enough that a medical man be got to the case, but when got



he will in most cases require to decide at once what is to be done, and to do what is required promptly, without waiting for assistance, otherwise I am sure that the consequences will very frequently prove disastrous both to mother and child, as well as to his own professional reputation and mental comfort.

In regard to treatment, deliver as early as at all practicable, and before flooding has gone to any great extent. Don't wait for strong labour pains, but act as soon as the hand can be got through the os uteri without injuring it, and this I am convinced can be quite easily accomplished in most cases, even in a very early stage of labour. In my five cases this was easily done in every one of them. In other classes of cases I have, as a rule, found turning to be a rather difficult operation, sometimes quite impracticable, but in this class never. I am aware that there is a difference of opinion on this point. Dr Barnes, whose statements are entitled to all respect, says, "that placenta prævia involves an enormous increase of vascularity of the parts, and this, especially in premature cases, renders the dilatation of the os both difficult and dangerous, and may give rise to laceration and contusion, followed by inflammation, pyæmia, puerperal fever, &c.;" and again, "that by its adhesions, dilatation of the os is impeded." No doubt this is true; but when said adhesions have been overcome, and dilatation has taken place, the loss of blood consequent thereon diminishes the aforesaid vascularity, and relaxes the os, as well as the whole muscular system. If we wait until the os uteri is so well dilated that turning can be effected easily, then we shall be pretty certain to have a dead child, and also run a great risk of losing the mother.

I have no doubt that cases may occur in which the os uteri is undilated, rigid, and undilatable, attended with hæmorrhage to such an extent as to cause alarm, or at least uneasiness, but I am persuaded that these are exceptional. In such cases, if there were any uterine action at all, I would say with Barnes, Churchill, and others, hasten the labour, puncture the membranes, apply a firm binder over the uterus, plug

the os with *Laminaria* tents, &c., so as to arrest flooding, and dilate at the same time, besides giving ergot. In cases where early assistance could be had, advantage might be got by putting the patient under chloroform, and if the os was still unyielding, with a good strong pulse, small doses of *Antim. tart.*, repeated at intervals, might produce relaxation without wasting the general strength.

As regards causation, or what governs the location of the placenta in these cases, I have no theory to offer; and besides, it is apart from my purpose to enquire into that question; but it is remarkable that of all my cases, there was not one primipara, the fifth labour being the lowest, and the eighth the highest. In regard to age, none were young, three being above thirty years of age, and three above forty. In regard to social circumstances and condition of life, they were all poor except one, but she had to work as hard as the others, perhaps more so, as she had no servant, yet her house and family were kept in better order than by the others; and lastly, they were all physically weak except the patient, case II., who was moribund when I saw her first, and of whom I knew nothing in this respect. They were all living in a bad atmosphere, over-worked, and under-nourished.

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V.—CASE OF DERMOID CYST OF THE OVARY, WITH UNUSUAL SYMPATHETIC SYMPTOMS.

By HUGH MILLER, M.D., *Fell. Obst. Soc., Lond., Physician-Accoucheur, Glasgow Maternity Hospital.*

OF all the abdominal tumours, those which take their origin at the ovary are by far the most interesting, in consequence not only of their frequency, but also owing to the great success, latterly, of the operation for their removal.

These tumours are found generally either in a solid state, or as cysts, with fluid contents; but another form of them less frequently met with, and of equal importance in all respects,

is that known as the *dermoid cyst of the ovary*. These cysts are of interest, as containing materials strictly cutaneous, although growing remote from the skin. Their inner surface has the structure, and even the productive properties of the tegumentary covering; and it is well known that even teeth and bone may exist in them abundantly. They have a likeness in their contents to those proliferous cysts which are chiefly found in the head and neck. When such tumours occur in connection with the generative organs, I believe they are congenital. The old idea, that they were due to imperfect ovarian pregnancy cannot explain their occurrence in early life. Cases are on record in which such cysts have been found at eight years of age, at six years, and even at eight months, and disprove the idea alluded to. The teaching of modern pathologists is entirely in favour of the congenital character of these cysts. Sir James Paget, in his lectures on Surgical Pathology, says that it is only "during the vigour of the formative forces in the fœtal, or earlier extra uterine periods of life, that cysts thus highly organised and productive are ever formed." Professor Schröder, to whom I am indebted for the latest theories on this subject, in his work on the "Diseases of the Female Sexual Organs"—just published—says, "that the first rudiment of the genital organs is developed from the axial cord of His, in the formation of which the upper germinal layer also participates; and that the horny layer contributes chiefly to its formation. From this, we can understand how formation of the external skin can originate from parts of the upper germinal layer which have not contributed to the formation of the ovary." |However they originate, we find, in practice, that with rare exceptions, these cysts remain dormant in early life, and their existence is not recognised until after puberty. From the cases recorded they chiefly appear to have been discovered about middle age, and only then when sufficiently enlarged to give evidence of their existence through interfering with the healthy action of the rectum and bladder.

The following case of dermoid cyst differs from those

recorded in various particulars, in respect that the patient's previous history was peculiar. The cerebral symptoms also were noteworthy, and altogether the violence of the effect on the constitution was uncommon.

The patient was a tall, well-formed young lady, aged 17. She had been under my care on various occasions, chiefly while suffering from gastric derangements, of which the exciting cause was not very obvious. Since her eighth year she suffered occasionally from severe attacks of colic. Her spine was tender and painful on pressure, but this was not constant. She often complained of feeling wearied. She was easily fatigued; and the ordinary exertion of a girl in health, when indulged in by her at any time was prone to lay her up for a few days. She suffered frequently from headaches. Her memory was defective, and she made little progress with her education. This, however, is not to be wondered at, when we recollect how frequently her studies were interrupted by her illnesses. Otherwise her health was good; and, despite her gastric and cerebral complaints, she looked tall and healthy for her age. She was the youngest of a family of six—three sons and three daughters. Her parents were alive and healthy, and their family were otherwise well-formed, muscular, and with good constitutions. As M. B. grew older, and from the absence of any apparent organic lesion, these anomalous complaints were supposed to arise from the non-appearance of the catamenia; and, with a view to secure this discharge, various ferruginous and tonic remedies were had recourse to. Her menstrual function began about a year ago, when in her sixteenth year; and, with slight intermission, it continued to return regularly, and with increasing copiousness, until the normal flow was attained—up till the onset of her illness.

After a lengthened stay from home during the summer, she returned to town, and applied to me for relief from the acidity of her stomach. A mixture of chalk and bismuth was used with only partial relief; so was also a powder of bismuth and nux vomica. By-and-by her ideas became confused. She suffered from a persistent pain in her head.

She had also some dimness of vision, which had been increasing lately. Believing the patient was now suffering from cerebral disease, Dr Thomas Reid, at my request, carefully examined her eyes. He found the retinal vessels slightly congested; the optic nerves were rather pale, but there was no positive indication in the eye of organic disease in the brain. We agreed to apply a fly-blister to the nape of the neck; to administer 20 grains of bromide of potassium, in infusion of gentian, every six hours, and an iron and aloes pill each evening. This treatment was continued for some time, without any improvement in the cerebral symptoms. Her appetite—which had continued to suffer after her head symptoms became more violent—was now gone, and her general debility increased. About the middle of September, 1874, the catamenial discharge appeared. It occurred at the proper time, and in normal quantity. Its presence did not relieve her sufferings; and it was the last occasion on which it appeared until she recovered. On the 5th October, I was sent for. She was suffering from retention of urine. While emptying the bladder with a catheter, I discovered a well-defined tumour over the pubis. This swelling was very tender to the touch—so much so, that she would not allow of the slightest pressure being applied to assist in the emptying of the bladder. The urine from this date had to be regularly withdrawn. Leeches and linseed-meal poultices were applied over the pubis, and gr. v. of Dover's powder, conjoined with small doses of the bromide of potassium, were given at regular intervals. The swelling increased. She could take very little nourishment; and what are usually described as "typhoid" symptoms gradually set in, increased in severity, and greatly complicated matters. She became semi-conscious and delirious, and it was only at rare intervals that she uttered an intelligent remark. She was restless, and her sleep was very disturbed. Thinking that her depressed state might be due to the general weakness with nervous exhaustion, I gave her a mixture containing dilute nitro-muriatic acid, with the decoction of cinchona, which, two days after, at the suggestion of Dr J. G. Wilson—who

saw her with me in consultation—was discontinued, and a mixture of quinine and dilute sulphuric acid given to her in its place. The diet consisted of iced-milk, arrow-root, beef-tea, and barley-water. By the 18th October she passed urine without the aid of the catheter, but the discharge became so frequent as almost to amount to incontinence. The urine was high-coloured, and loaded with urates. From this time a daily record of the case was kept, of which the following is a brief report.

*23rd October.*—Condition unaltered, but she suffered from a severe pain in the lower part of the abdomen, which was increased on pressure. As the bowels had been very sluggish, I ordered an enema; and large poultices continued to be applied over the swollen surface. The same evening severe vomiting came on, followed by great relief to her feelings. It was noticed next day that the swelling had diffused itself over the hypogastric—the lower part of the umbilical—and part of the left inguinal regions. The stomach now refused to retain any food, except small quantities of iced milk with lime water. The general posture and the low muttering delirium became now more like that seen in typhus patients. She was extremely restless, and had frequent attacks of nausea, with vomiting. The urine, which was now clear, was passed without difficulty, and the bowels acted freely. At this stage the treatment was changed to the dilute nitro-muriatic acid, with ounce doses of the decoction of cinchona every six hours. Still the patient continued to show symptoms of increasing prostration. The pulse was weak and frequent. The rigors were not severe, neither was the reaction to great heat of body marked, but she had copious sweating. As her body wasted and the feebleness became extreme, the tendency to vomiting ceased, and she was fed on wine whey, beef tea, and egg flip, with milk, as often as she could be persuaded to take them. Towards the evening of the 30th violent vomiting occurred. At first she simply returned the food, but afterwards she put up large quantities of a yellowish fluid, of a very offensive smell, and having all the appearance of pus.

This continued for two days, during which the stomach refused to retain any kind of nourishment. In these circumstances an enema consisting of brandy, beef tea, and Batley's sedative liquid was used at intervals of a few hours, without any relief, however, to the extreme exhaustion and prostration into which she now sank. During this time the swelling became more prominent in the left iliac region, and as Dr J. G. Wilson and I suspected pus to be forming there, the services of Dr Eben. Watson were solicited. Dr Watson found the patient so low at the time of his visit that he did not anticipate recovery, but with the view of relieving pressing symptoms he pierced the abdominal walls with an aspirator, and withdrew about eight ounces of pus. It was deemed expedient to give her simply brandy with soda water in small doses every two hours. After the operation, the vomiting became less frequent, and by the third day the offensive matter ceased altogether to be ejected.

*November 3rd.*—With the cessation of the vomiting she began again to suffer pain in her stomach after taking food. To relieve this she got quinine with champagne. The injections of beef tea were discontinued. In every way, but in the ability to sleep, her condition improved. Indeed, the whole of the severe symptoms, which were now believed to be due to acute ichoræmia, appeared to be subsiding.

*November 13th.*—Patient's strength very much increased. Appetite good. She complained to-day of a pain over the lower part of the abdomen. She got castor oil, but it was returned as soon as swallowed. An injection of castor oil with turpentine was then given, and was to be repeated, if necessary, after an interval of two hours. This was done, but only a little dry and mealy feculent matter came away. A compound rhubarb pill every two hours was directed to be given until a loose motion was secured, but no purgative effect followed till the third day, though she swallowed twelve pills. Her consciousness had almost completely returned.

*November 16th.*—A well-defined swelling now existed in the lower part of the abdomen. It caused no uneasiness

except on pressure being applied. The poultices were resumed.

*November 17th.*—The abscess is enlarging, and continuing to point in the direction of the former puncture. Meanwhile, the patient's strength and general condition of health were improving.

*November 18th.*—Fluctuation distinct.

*November 19th.*—Dr Watson repunctured the abscess and drew off about sixteen ounces of pus with the aspirator.

*November 20th.*—She slept well last night, but to-day she is dull and irritable. She complains of a slight but constant pain in the abdomen. The urine is scanty, and passed with pain. To relieve the bowels, I ordered  $\zeta i$  of the Pulv. Glycyrrh: Co. (Prus: Phar:) to be given night and morning. This was done until an  $\zeta i$  was taken, without procuring a purgative effect.

*November 22nd.*—Constipation still continuing, the bowels were relieved by an enema. Abdominal pain unaltered.

*November 30th.*—She is sleeping well, her appetite is much better, and her general strength is improving. To relieve the induration over the pubis, directions were given to rub the part gently night and morning with the Ung: Hydrar: Iodid: Rub: (B P).

*December 4th.*—The stomach becoming intolerant of the nitro-muriatic mixture, the citrate of iron and quinine was substituted with benefit. The pain in the right groin still continued, and the ointment seemed in no way to have beneficially affected the induration.

*December 10th.*—The swelling had increased, and become more tender on pressure, especially over the right groin. Dr Watson now made an incision in the mesial line down to the seat of the abscess, when about forty ounces of pus escaped, and along with it a mass of hair, about the size of a small orange. This mass was found, under the microscope, to be true hair, of a brownish colour, and rendered evident the nature of the affection with which we had to deal. The abscess was emptied under the carbolic acid spray, and a plug of lint, soaked with a solution of the same acid, was



placed in the opening. The wound was dressed antiseptically. We had the advantage of a nurse trained by Prof. Lister, who was thoroughly conversant with the application of his antiseptic method of dressing wounds. Under her care, the young lady received every advantage from judicious nursing and careful dressing. The patient was much exhausted after the operation, and was fed on alternate doses of beef tea and champagne. She got m. xx. of the solution of morphia after the operation, and also six hours afterwards. Temp. 99; pulse 140.

*December 11th.*—Patient slept well. Had still an inclination to retch after food; otherwise well. Discharge of pus abundant. The citrate of iron and quinine mixture to be continued. Temp., morning, 99.4; evening, 100; pulse, 144.

*December 12th.*—Patient slept well with the aid of the morphia. She is free from sickness, and the discharge of pus is diminishing. The temperature and the pulse are the same as yesterday.

*December 13th.*—She had a good night, and her appetite to-day has improved somewhat. Morphia to be discontinued. Temp., morning 98°.4, evening 98°; pulse 130. From this day the temperature never rose above 99°, and the pulse gradually fell to 80. By the 26th the patient could sit up a few hours daily, and on that day she even walked a few steps unaided. With the exception of an occasional pricking sensation near the incision, she felt no uneasiness. On the 28th the antiseptic dressing was discontinued. There was no discharge, and the wound was treated with water dressing. On introducing the probe, sinuses were found in two or three directions. These were the occasion of fitful discharges, which at intervals re-opened the wound, and for a time made it doubtful whether the whole of the contents of the cyst had escaped. By the middle of January the patient's general health had materially improved. Her catamenial function returned during the last week of February, and since then she has not only regained good health, but the cerebral derangements have entirely disappeared.

She has now a fair memory; she is able to apply herself to her lessons; and her mental powers have very much improved. Indeed, her mind gives evidence of having, at least, an average capacity, but she still suffers from a weakness, or defect of vision.

Through the kindness of Dr Eben. Watson, I have been furnished with notes of an abdominal abscess, which occurred in a patient under his care in the Royal Infirmary, and which abscess was supposed to be an ordinary ovarian cyst. It may be well shortly to describe it, as it has some features in common with the above case, and it will enable me to contrast some of the symptoms observed in both.

Catherine Galbraith, aged 58, was transferred from Ward VI., as a case for ovariectomy. The consultation agreed that the physical signs of an ovarian cystic growth were present. On 7th March, 1875, when the operation was commenced by cutting into the mesian line through the abdominal wall, a large quantity (about six quarts) of thick pus escaped. When the finger was introduced through the wound it passed into a cavity, in the lower part of which the organs of the pelvis were felt covered with flocculent lymph, and above, the wall of the abscess formed a complete partition between its cavity and the intestines. No hair, or other foreign substance, was found in the pus. The abscess was thoroughly evacuated, and the wound dressed antiseptically. A drainage tube was kept in for a time, and the discharge gradually diminished. The patient made an uninterrupted recovery, and was dismissed from the Hospital on 6th May. The opening then was still unclosed, though much reduced in size, and there was almost no discharge from it. The woman has since called at the Hospital, and remains in excellent health. The wound may be said to be now closed.

Dr Watson's case, although affording no evidence of being a dermoid cyst of the ovary, may be considered as having symptoms and a history identical with most of these cases. There was the absence of gastric and of cerebral derangements, and there were present all the local signs of cystic growth, and of mechanical interference with

rectum and bladder before the patient sought relief. This, then, is the usual history of such cases. The existence of the tumour is not even suspected during the earlier stages of development, nor until the cyst produces enlargement of the abdomen. Unless my own case, therefore, is a very exceptional one, these tumours may be of more frequent occurrence than the records of our profession indicate. Indeed, it is evident that dermoid cysts can exist, can produce many symptoms sufficiently important to require treatment, and yet be devoid of any features decided enough to guide the practitioner to a correct diagnosis. What were mere sympathetic symptoms may thus be treated as the disease, and the patient may seek in vain for relief during the uncertain years of its earlier history. Although believed to be congenital, it is evident that only in some rare instances have these cysts been discovered before the adult age. The rule appears to be that their development begins after puberty to assume a more active form, though even then the cysts frequently remain stationary, and have been discovered in bodies at an advanced age where their existence had not been recognised during life. It is the more remarkable, therefore, that although my patient's tumour was too small to give evidence of its existence either through the increasing size of the abdomen, or through the discomfort of its presence as a foreign body in the pelvic viscera; and from her having almost an entire freedom from any derangement of a diagnostic value in ovarian disease, yet to have so markedly suffered from disorders of the gastric and cerebral organs. That these symptoms of derangement had a relation to the tumour I have no doubt, for with the removal of its contents their disordered condition ceased, while for years previously they had persistently, and in spite of remedies, remained unamenable to treatment. Assuming that these symptoms were sympathetic, we find in relation to such cystic tumours that they are very uncommon, so much so, that I have found no record of a similar case of aggravated suffering, and such symptoms do not appear to exist so decidedly even where

the rapid growth of the tumour would indicate a more decided constitutional disturbance.

As a rule, the walls of the dermoid cysts are thick. Sir James Paget believes "the thin-walled are the most productive, grow most rapidly, and are the seats of most active change." Undoubtedly, if he be correct, we have here some reason for sympathetic symptoms, for constitutional disturbance, and the rupture of the cyst so early in the patient's menstrual life. Yet, while making large allowance for the presence of sympathetic irritation, I confess still to consider as obscure the relation of cause and effect, which produced the following derangements in the patient during her years of suffering up to the stage at which the vesical complication occurred. What was the nature of the brain affection, and what relation did it bear to the ovarian growth? Was it caused by the tumour, or was it simply coincident? If coincident, how can we explain the relief from the head symptoms which followed the cure of the abdominal disease? If the head symptoms were caused by the ovarian disorder, how can we explain the mode of causation? The whole question of constitutional disturbance, as evidenced by the sympathetic suffering, is one of very great importance indeed, and when put in comparison with the direct inconvenience from the tumour, as was manifest in my case, acquires a significance which has not hitherto been given to it.

While the earliest constitutional symptoms were cerebral and gastric, the earliest local affection was the retention of urine. She complained of no pain in the region of the ovary, where the malady must have originated, and there was no evidence of even a rigor, although the mischief must have spread over most of the pelvic viscera. The inflammation must have been latent, passing through its initial stages silently and treacherously, and without manifesting the usual signs by which its presence is recognised. This is not to be wondered at when we consider Dr Watson's case. That patient was sent into his ward to be operated on as a case of ovariectomy. "The

consultation," says the report, "agreed that the physical signs of an ovarian growth were present"—yet six quarts of pus escaped when he began the operation. There was wanting evidence of the existence of those usual signs by which we recognise the presence of pus, or even the inflammatory conditions which might lead to it. The presence of pus was first known while the surgeon was operating for what he believed to be an ovarian cyst. Considering the well-known skill of the consultants at the Royal Infirmary, I cannot avoid asking—If these cysts can exist, burst, become a source of inflammatory irritation to the abdominal contents, nay, may even produce a fatal issue, without the existing cause being discovered unless by the aid of a *post-mortem*? From Dr Peaslee we learn that "the escape of the fluid of an ovarian cyst into the peritoneal cavity, in consequence of a rupture of its walls, is rarely a salutary accident; often the result is fatal." If this follows when a comparatively bland secretion is the irritant, the peritonitis will be the more severe with such irritating substances as occur in dermoid cysts, and from its increased virulence ought the more readily to terminate fatally without the exciting cause being detected. In my patient no exciting cause could be assigned for the rupture of the cyst except its distension, and there was no history of a hereditary tendency. The rupture, indeed, is likely to have occurred spontaneously, and would not have been discovered but for the suppuration and the constitutional disturbance which ensued. From the time when the cyst burst, the attendant suppurative irritation must have been slight, and not at all in proportion to what often takes place in peritoneal inflammatory affections. The morbid state throughout was more constitutional than local in its effect. This was manifested by producing most of the signs of severe fever, especially of such an exhaustive type as typhus. Perhaps the irritation from the bunch of hair had an increased tendency to produce putrid or decomposing matter. From the time when the suppurative action set in, and the bladder became inflamed, I have no doubt the whole of the constitutional disorder might be safely con-

sidered as that of acute ichoræmia. With the increase of the morbid material her condition became more grave, and the prostration seemed at its worst when the severe vomiting set in. This leads me to direct attention to another obscure point in the case. That is, how to account for the source of the pus vomited. Was it due to a perforation of the bowels, and a communication with it and the cystic abscess? My own opinion is, that it was so; and that nature had selected this way of throwing off the poisoned material. The abdominal viscera are often selected in preference to the external walls of the body. When the part selected communicates with the vagina, or some portion of the lower gut, the result is usually satisfactory. In this case the part perforated must have been near the stomach, and too high to afford drainage facilities. Unless, therefore, the morbid material had been withdrawn from the body by the opening made through the abdominal wall, nature's effort to eliminate would have been fruitless. The presence of the pus, after the first piercing with the aspirator, was recognised without difficulty; and the treatment, by making a free opening into the cavity of the abscess, proved the most satisfactory way of withdrawing its contents, while it enabled the surgeon to fully estimate the obstacles he had to contend with. Without this, the exciting cause of the abscess could not have been discovered; and any treatment short of removing the cystic contents—which were the source of irritation—could only have been palliative and abortive. With the removal of the irritating substance, we eliminated the peculiar features in the case, and gave to our patient the best chance of making a complete recovery. The after-history of the case was instructive, but it hardly requires a special notice, further than to say, that the patient is now quite well in every respect.

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## VI.—IMPROVED PNEUMATIC ASPIRATOR.

By DAVID NEWMAN, *Glasgow.*

ANYONE who has had occasion frequently to use M. Dieulafoy's aspirator, in the treatment of morbid collections of fluid, must have experienced considerable inconvenience from the liability of the needle to become obstructed, when the fluid is at all viscid in character; thus necessitating, in many cases, the frequent withdrawal of the needle before the operation can be completed, and so causing an unnecessary loss of time, and needless pain to the patient. It would therefore be an advantage if the obstruction could be removed without rendering it necessary to withdraw the needle. For this purpose I suggest the employment of an instrument, as shown in section in the adjoining figure. It consists of a slender hollow needle (*Fig. I.-a*), about four inches in length, the one end of which is pointed, the other attached to a hollow cylinder (*b*), three-eighths of an inch in diameter, from one side of which proceeds a tube (*c*). Through the cylinder and needle a probe (*d*) is passed, long enough to project about a twelfth of an inch beyond the point of the needle; and is made slightly thicker towards the point, so as to completely fill up the calibre of the needle. When the probe is drawn back, it is prevented from being pulled out of the cylinder by becoming caught by a piece of metal (*e*), with a perforation just large enough to allow the thinner part of the probe to pass, but which catches the thicker portion. The exhausting apparatus consists of a glass vessel (*Fig. II.-a*), of a sufficient size to contain twelve fluid ounces; to it are attached two tubes (*b* and *c*), made to perforate the cork the one inside the other; the smaller projecting an inch beyond the cork, the larger about half that distance. Outside the cork the smaller tube pierces the larger, and they diverge from one another, the larger tube (*c*) passing to an air pump, the smaller (*b*) to the needle.

The way in which the instrument is employed is as follows:—Having connected the different parts of the appa-

tus together, and lubricated the end of the needle with carbolised oil, the probe is withdrawn about an inch. The needle is now ready to introduce into the collection of fluid, which being done the probe is projected, so as to make sure that there is no obstruction; it is then drawn out to its full length, in order to allow the fluid to escape. The air pump is worked slowly, and the fluid is drawn into the receiver. If, however, it is desirable to stop the flow, or, supposing the needle has become stopped, the probe should be passed down. Or in the event of the instrument being used in the evacuation of an abscess, and there is some suspicion that it is in connection with diseased bone, then the probe may be used as an aid in diagnosis, at the same time as the needle is employed in withdrawing the fluid.

The instrument has been used with success in the Western Infirmary, by Professor George Buchanan, in cases where it would have been impossible to extract the fluid by means of the ordinary aspirator needle, without withdrawing it several times in order to clear away obstructions. In one case it would have been quite impracticable to have employed the instrument commonly in use, on account of the thickness of the pus, and the large amount of solid matter contained in the abscess, which were continual sources of obstruction to the flow. But the impediment was easily removed by the probe, so that nearly the whole of the fluid was evacuated, without once withdrawing the needle from below the skin.

The merits which, I think, may be claimed for the instru-

#### DESCRIPTION OF PLATE.

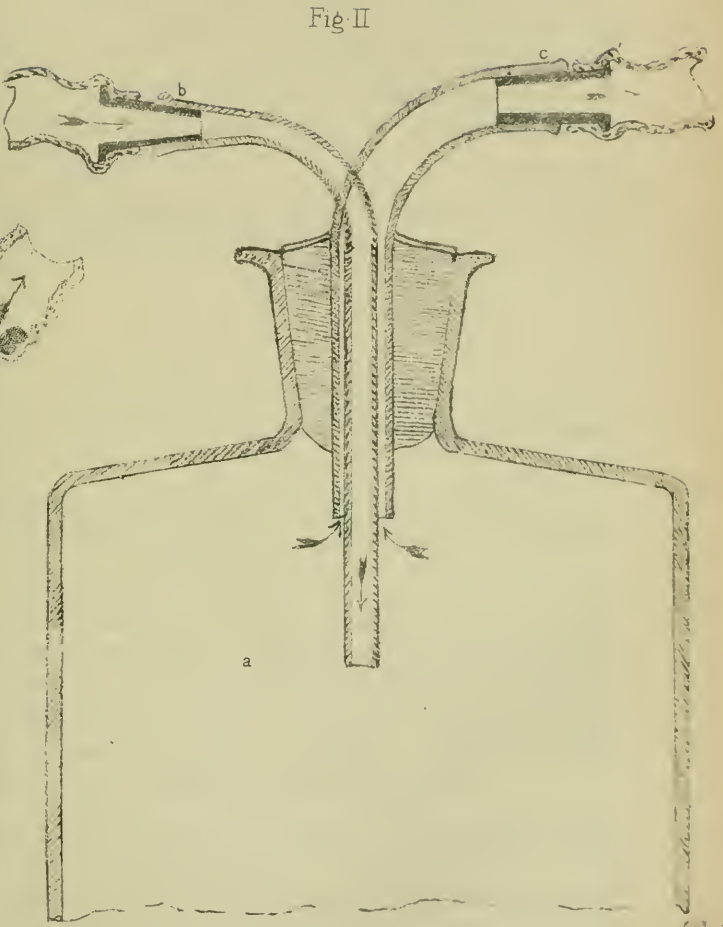
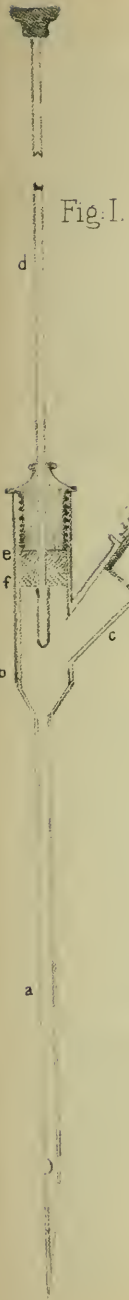
##### FIG. I.

- (a.) Needle.
- (b.) Cylinder.
- (c.) Escape tube communicating with receiver.
- (d.) Probe withdrawn to full distance.
- (e.) India-rubber washer.
- (f.) Metal disc to catch the probe and prevent it being drawn out of the cylinder.

##### FIG. II.

- (a.) Receiver.
- (b.) Tube passing to the needle.
- (c.) Tube communicating with air pump.







ment are, (1) when the passage in the needle becomes obstructed, the impediment is easily removed by protruding the probe, without the withdrawal of the needle, and at the same time avoiding any delay in the progress of the operation, hereby preventing unnecessary discomfort to the patient; (2) the amount of extractive force is better known, and more easily regulated, than when the aspirators at present in use are employed; (3) the probe may be used, if required, after the fluid has been drawn off, for examining the condition of bone, or in ascertaining the presence of foreign bodies, &c.

\* \* The complete instrument, or the needle alone, may be had at W. B. Hilliard & Sons', 65 Renfield Street, Glasgow.

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## VII.—OTOLOGICAL MEMORANDA.

BEING CLINICAL OBSERVATIONS ILLUSTRATIVE OF THE DISEASES AND INJURIES  
OF THE EAR.

By JAMES PATTERSON CASSELLS, M.D., M.R.C.S., *London, &c.*,  
*Surgeon to, and Lecturer on Aural Surgery at, the Dispensary for Diseases of  
the Ear, Glasgow.*

**I.—On malformations of the auricle and external auditory meatus, congenital and acquired; Injuries of the auricle and meatus; Value of early incision in the treatment of the inflammatory affections of the meatus; Injury of the mastoid and rupture of lateral sinus.**

*Congenital malformations of the auricle* are almost always associated with non-development and malformation of the external meatus, and this condition is very generally accompanied by malformation of the tympanum and Eustachian tube. On the other hand, my own clinical experience coincides with the results arrived at by other observers—viz., that in such cases the labyrinth is normal; that, in fact, with irremediable malformation of the other parts of the organ, there may be a

perfect sensitiveness to transmitted tones.\* Nor is this at all surprising if one considers the manner and process of development of the organ of hearing in intra-uterine life. Inasmuch, then, as these cases come under our notice with the object of having the malformation treated by surgical means, it follows that the knowledge above referred to is not without its value and influence in relation to our practice, because it is not always possible to gain positive evidence of the condition of the labyrinth in early life. If, notwithstanding the possibility of a normal labyrinth, in any given case, we find on examination that the Eustachian tube is malformed beyond the possibility of executing its functions, or totally absent, any attempt at remedying the malformation of the external ear is hardly justifiable, inasmuch as the tympanum and its contents may be, and probably are, involved in the abnormal change of form. With a normal Eustachian tube, however, any such attempt is not only not questionable, but perfectly warrantable. Such, indeed, was the nature of the following case, in which I endeavoured to make patent the external meatus, but without success:—

*Case I.*—A child, æt. 3 years, was sent to me for examination. Her state was as follows:—She was cheerful and amiable in temper, in good general health, uttered monotones, and seemed to hear very loud sounds. Both auricles were malformed, the right one being the worst. On this side the meatus ended in a *cul-de-sac* of about two lines in depth. Examination failed to detect any true auditory canal. The left meatus was normal, or nearly so, in form. The left membrana tympani was seen; its appearance was indicative of simple katarrh of the tympanum and Eustachian tube. On the right side it was tolerably certain that the Eustachian tube was normal; it was not possible to ascertain, however, the actual state of the tympanum. The labyrinths, so far as one could determine in a patient so young, were sensitive to transmitted tones. The hereditary history was quite satisfactory in every respect.

\* See on this subject a paper in *Edin. Jour. of Med. Science*, 1847, by Prof. Allen Thomson; also report of a case by Toynbee.

The questions submitted in consultation were as follows:—

1. Is the right meatus present, although occluded at its orifice, and can it be made available for the transmission of sound? 2. Is the malformation double? 3. If not, if the left ear is normal in its essential parts, what is the cause of the deafness? 4. Can the condition of the child be remedied; in other words, is it possible to remove the cause of the deafness in the normally formed ear?

An exploratory incision through the *cul de sac* on the right side demonstrated the absence of an external meatus. The examination above detailed had by anticipation answered the second and third questions. As the loss of function on the left side was apparently due to the katarrhal state of the tissues, experience enabled one to hold out a hope of greatly improving it by judicious treatment. This, with the approval of the family medical adviser, was begun at once; in addition, the education of the child was at the same time instituted by means of vocal object lessons.

The result, till now, is gratifying to all interested in the case. Since the date of the consultation, not many months have elapsed, yet the little patient's hearing is very decidedly improved, so much so, that she makes attempts to repeat several words immediately after they are spoken to her.\* She is still under treatment, with a fair hope of being rescued from deaf-mutism.

*Malformations of the auricle*, which are acquired, are always met with in females, and are, for the most part, the consequence of foolish prejudice; for the leaders of fashion, regarding the *uncovered* auricle as detracting from, rather than adding to, the beauty of the face, do their utmost to hide it from the public gaze, and elderly ladies, setting aside fashion for personal comfort, cover the auricle with multitudinous wraps to exclude the cold; in either case the result is the same. The elevations and depressions of the auricle are effaced, and the angle at which it stands out from the head is destroyed, so that it lies oftentimes in close contact with the post-auricular region. Such

\* She now (Jan. 1876) speaks pretty well.

an auricle is useless, or nearly so, for the purpose of hearing. This malformation is not in itself of so much importance, however, as to merit special remark, except perhaps from the student of the beautiful in nature, were it not that it is directly the cause of a condition of the tissues which in advanced life gives much annoyance; I refer to collapse of the orifice of the cartilaginous meatus. That the orifice of the canal, otherwise healthy, may become collapsed in the way I have affirmed, anyone can prove for himself who presses firmly with the finger tip upon the outer margin of a well-formed auricle. The effect produced by this manœuvre upon the entrance of the canal is as follows:—The posterior segment of the orifice is seen to approach towards the anterior one, thus narrowing the orifice of the canal. Needs it to be asked, what result would follow if the pressure thus applied were continuous? In regard to this malformation, my experience may be summed up in a few words. Except in two instances, and these not associated with a flattened auricle, I have never seen a case of narrowing of the orifice of this canal from collapse of the tissue in one of the male sex; nor have I met with a case in a female in whom the auricle was in every respect normal. In one case—a young lady—the auricle was turned back, but not flattened, yet the orifice of the canal was distinctly small; it was narrowed, but not by collapse. True collapse consists in the posterior segment of the orifice of the canal approaching, in the manner above described, the anterior one, and nearly or quite touching it, and is to be distinguished from simple narrowing in the following manner:—If you make traction upon the auricle, upwards, outwards, and backwards, this proceeding restores the natural caliber of the orifice of the meatus, if the contraction be the result of collapse, but it has little or no effect upon the meatus narrowed by disease or otherwise. This distinction is not of slight importance in practice, even were it possible at first sight always to satisfy oneself as to the cause of the narrowing; for the treatment which is applicable for the relief of the orifice diminished by collapse of its healthy tissues, may be, and commonly is, inappropriate for the cure of that concentrically narrowed by disease.

For the relief of the deafness due to complete collapse of the orifice of the external meatus, I use, with benefit, a lightly constructed tube of vulcanite, and find it superior in every respect to those formed of metal. I may, however, remark, that even this appliance is seldom called for, for the collapse is rarely so complete as to hinder the ingress of sound. A very small chink, indeed, suffices for its passage. The deafness, which is the symptom most complained of in these cases, is more frequently caused by accumulations of cerumen and epithelial *debris*, which fail to make their escape, by reason of the constriction at the orifice of the canal.

*Narrowing of the canal* itself is either congenital or the result of disease, and situated either in the cartilaginous or osseous sections of the meatus.

In speaking of the narrowing which is caused by disease, I do not here refer to that condition of the canal in which its caliber is encroached upon by adventitious growths, but to the concentric narrowing due either to a hypertrophy or contraction of its own tissues, to which I shall revert by and bye.

*Congenital narrowing of the external auditory meatus* is generally situated in the osseous portion of the canal, and is associated with a similar condition of the osseous portion of the Eustachian tube. If the soft tissues entering into the formation of the last-named canal and the tympanic lining membrane are healthy, the double narrowing just mentioned is compatible with good hearing. The danger, however, of great, if not total, deafness occurring in such a case is at once evident from the fact that a very slight katarrhal tumefaction of the tissues suffices in such circumstances to close the canal. In a simple uncomplicated case of narrowing of the external meatus, fair hearing is found even when the aperture for the transmission of sound hardly admits of the point of a small probe, from which fact one can infer how important a part the Eustachian tube plays in the function of the organ.

*Case II.*—The following case, which I saw upwards of a year ago for the first time, is of more than ordinary interest in several points:—The patient was a healthy young lady, æt. 13. In infancy and childhood she heard “quite well.” Five years

ago she became slightly defective in her hearing. This state of matters continued to get worse till now, when her deafness is so great, that she only hears loud conversation quite close to either ear. Tested by the watch, the ears seem equally perceptive—viz.,  $\frac{2}{72}$ ". In every respect her general history is satisfactory. The cause assigned by her parents for the deafness is as follows:—When about seven years old, the patient had an eruption on the scalp, for the cure of which cold lotions were constantly applied. In the application of these it was not always possible to avoid wetting the neck and sometimes the child's clothing as well; in this way they think she caught cold in the throat and became deaf.

On examination, both meatuses are seen to be normal in the whole of their cartilaginous portions, but each canal in the osseous portion is contracted, the opening left in the constricted part hardly admitting of the passage of the point of a small probe. On the right side it is just possible to see the membrana tympani, but on the left side it is impossible to catch a glimpse of this part of the ear. The condition of the tympana is therefore inferred from the results of the auscultation of these cavities. Both labyrinths are normal as to perception of transmitted tones. The naso-pharyngeal cavity in its entire extent is congested and relaxed; from its appearance and the tone of the patient's voice, I infer that she has suffered for a very long time from nasal katarrh. Both Eustachian tubes are katarrhal and contracted in their osseous portions. Diagnosing the case as one of double congenital narrowing of the osseous portions of the external meatuses and Eustachian tubes, and that the deafness was in great part caused by the katarrh of the latter, now chronic in character, I was compelled to regard the case in an unfavourable light. Indeed, inasmuch as the young lady's parents declared that she was becoming deafer daily (and knowing the progressive character of the deafness that usually follows katarrhal changes in the tubes or tympana, I was disposed to attach some weight to the statement), the chief object of the treatment, since carried out, had in view the arrest of this increasing deafness. Accordingly, general hygienic measures were recommended, which were intended to improve the



general tone, while local measures were carried out, with the object of diminishing the congestion of the naso-pharyngeal mucous membrane and of effecting the removal of the post-nasal katarrh. These happily soon brought about a much healthier condition of the membrane of the post-nasal region. It was hoped that a persevering use of this general and local treatment for some months might so improve the nutrition of the affected tissues, that the progressive katarrrhal changes in them might become arrested and the function preserved. The correctness of the diagnosis and of the principles of treatment have been confirmed by a year's observation of the case. The hearing is now improved to  $\frac{4}{7\frac{1}{2}}$ "', and the naso-pharyngeal mucous membrane appears much healthier. The improvement to ordinary conversation is, however, more apparent than it is to the watch, and I feel satisfied that the better hearing is in consequence of the healthier tone of the whole tissues, particularly of those entering into the formation of the Eustachian canals. This improvement gives grounds to look for ultimate success in the attainment of the objects had in view at the outset of the treatment—viz., arrest of the progressive katarrrhal changes and preservation of the function.

There are some points of interest in connection with the case just related that deserve attention. It may be questioned, for instance, if the patient ever heard well, as her parents affirmed. Although this statement rests alone upon their unsupported word, I am disposed to regard it as in some measure reliable, on the following grounds:—The simple uncomplicated malformation of the parts, above described, was not likely to diminish the hearing distance below what those accustomed to accurate observation might have justly regarded as "fairish hearing;" and the parents meant no more, when they stated that their daughter heard "quite well" in her early years. Further, the very small portion of the right membrana tympani seen on examination, together with the appearance of the naso-pharyngeal tissues, and the râles heard during auscultation, gave grounds for the belief that their katarrrhal state was of comparatively recent origin, probably coincident with, if not caused by, the ac-

cidental wetting of the garments, as already mentioned. As to the probable cause of the naso-pharyngeal katarrh, I consider the one alleged by the parents as reasonable, and not altogether unsupported by observation, for I have found bad katarrh of the tympana and tubes in otherwise healthy people who perspire much about the head, or who have indulged for a time in sea or other bathing. How to account for many of these cases, unless by saying that they arose from "a cold in the head," or katarrh of the naso-pharynx, the consequence of drying the hair of the head imperfectly, I do not know.\*

The varieties of narrowing of the external meatus usually met with, due to pathological changes, are the slit-like narrowing of the canal at the point of junction of the cartilaginous with the osseous portion, caused by contraction of the fibrous tissue uniting these parts, and the irregular narrowing of this latter portion by one or more hyperostoses. Both are deserving of notice, because they may not only diminish the hearing, but seriously imperil the life of the patient, by hindering the free exit of natural or morbid secretions. Concerning the origin of these pathological states, I think it is sufficiently clear that they are the consequences of disease in other parts of the organ, most frequently of all in the tympanum. That they are, in fact, the consequences of a perverted nutrition, brought about by the greater afflux of blood to the organ. Although I have seen numerous cases in which the canal was *almost* closed by one or other of these morbid states, I have never seen it completely occluded by them; indeed, I should be disposed to say, inasmuch as I have not seen such a case in the whole of my private and extensive public practice, that such a morbid state of the canal is very seldom met with, *i.e.*, complete occlusion due to pathological changes.

The treatment that suggests itself in such cases is, the removal of remote disease, and of the consequent hyperæmia, and the establishment of a healthy tone to the

\* *Apropos* of this subject, the discussion at the Congress, held in Wiesbaden, in 1874, did not elicit an explanation more reasonable than the above,

tissues. When this is accomplished, the slit-like narrowing may be treated directly by a tangle or sponge-tent. The hyperostoses may be let alone; as a rule, removal of the irritative cause, in the manner above indicated, arrests their growth, and they give no more trouble.

*Case III.*—A lady, *æt.* 76, who was almost completely deaf, complained of great and distressing tinnitus in both ears. Her illness was of many years' duration. On examination, the auricles were seen to be pressed flat to the lateral aspect of the head, and the orifices of the canals closed to a mere slit. This latter condition was only in part affected by the manoeuvre which I have already described, as serving to distinguish true collapse from narrowing of the orifice of the canal; for in truth it was a combination of both conditions: the patient had suffered from chronic eczema of the auricle; this accounted for the hardness and condensation of the tissues of the auricle and orifice of the meatus.

Immediately within the orifices of the meatuses, the canals were normal in caliber, and filled with debris. When this was removed a second contraction was found at the junction of the cartilaginous and osseous portions. The opening in this contracted part was circular, and hardly allowed of the passage of a small probe through it. Suspecting that the deafness, which had not been lessened by the removal of the debris from the more external parts, was in reality caused by accumulations in the canals within these second strictures, I dilated them with tangle, and had the satisfaction of finding that this suspicion was well founded. I succeeded in removing much sebaceous matter, with the result of improving the hearing very considerably.

*Case IV.*—A gentleman, *æt.* 40, had suffered for many years from tympanic disease. He was, however, anxious, not on account of this disease and the consequent deafness, but because of several bony growths which, he had been told, were in each ear. The examination showed that the osseous portion of each meatus was the seat of several hyperostoses, and that the caliber of the canals was seri-

ously encroached upon by them. The soft tissues covering these enlargements were deeply congested and exquisitely sensitive. The tympana were seriously diseased and disorganised, and he suffered in addition from more recent, although chronic, katarrh of the Eustachian tubes. As I have already said, the patient seemed more anxious about the bony growths than about the great and increasing loss of function, due alone to long standing disease of the tympana and tubes. This anxiety was caused, I learned, by the opinion expressed by some one whom he had consulted that ultimately complete occlusion of the canals would result from the continued growth of the tumours. While it was imprudent to shut one's eyes to the possibility of the former part of the statement being verified, I yet felt that I could not give the opinion my unqualified concurrence, simply because I was satisfied that the growth of the hyperostoses, if still going on, was due to the extensive disease and long-continued irritation in the tympana, and that the arrest of this growth was possible by the removal of the exciting cause. I was glad for the patient's sake that I could express an opinion to this effect; it calmed his fears, and he willingly acceded to my proposal to treat the disease of the tympana. Six months' treatment sufficed to remove all morbid active processes, and to improve the hearing very considerably—indeed, to a degree almost normal. At the end of the period just mentioned, the tissues covering the hyperostoses were pale and healthy in every respect, and their unnatural sensitiveness quite removed. The case has been seen occasionally during the last twelve months, and although no apparent diminution has taken place in the size of the bony tumours, it is beyond doubt that they have not enlarged since they were first seen by me. The progress of the whole case is satisfactory; damages, the consequences of long-standing disease, are being repaired slowly, and the hearing, originally much impaired, is now uniformly good, and sufficient for all the business of life.

*Injuries of the auricle* in this country are comparatively rare, still more rarely are they followed by malignant disease,

as in the following case, which on that account possesses some interest.

*Case V.*—A strong, healthy, labouring man, æt. 50, attended at my *clinique*, and gave the following history:—Several years ago he received a severe blow on the right auricle, without, however, causing any wound of it. Shortly after this, the swelling, which the blow had caused, and which had never completely subsided, increased and ulcerated. Treatment of a kind was carried out for some time without effect. The ulceration increasing, he came to town, and again carried out treatment for some time, with a like failure. At this time, so far as could be learned from the patient, the ulceration was confined to the lobule. On his first visit to the dispensary it was seen that the ulcerative process had completely destroyed the auricle, and had invaded the lateral aural region, and the whole of the cartilaginous meatus. As might be expected, the hearing was considerably diminished. The right *membrana tympani* could not be seen. There was a slight degree of sympathetic enlargement of the neighbouring glands, but not so great as the nature and extent of the disease warranted us to expect. The ulcerated surface presented all the appearances of an epithelioma, and the prognosis was decidedly unfavourable, as may be surmised from the site and extent of the disease.

In regard to the treatment of the case, the question of excision was considered, but it was decided that the time for successful surgical interference had passed away. So long as the disease was limited to the auricle, the knife offered a prospect of cure, but unhappily the opportunity for employing it with benefit had not been seized by the surgeon into whose hands the case had at first come. Fuming nitric acid, and subsequently chromic acid were applied to the surface with the hope of inducing healthy action, or at least staying the disease.

For a time these applications seemed, on the separation of the slough, to have such an effect. The disease, however, continued to advance, and the poor man discontinued his attendance. At this time I estimated the duration of

his life at about 12 months; and as nearly a year had elapsed since I saw him, I quite recently endeavoured to get tidings of the case, but failed in my enquiries.

In the following case of *epithelioma of the auricle*, the result was more gratifying, inasmuch as the free use of the nitric acid was followed by healthy action in the parts, and ultimate cicatrization of them. This case differed from the one just related in two points, as follows:—The pain complained of in the former was inconsiderable, while in this one, in which the ulcerated area was quite trifling when compared with the extensive one seen in the former case, it was excessively acute. The disease in this case was not the result of an injury to the auricle.

*Case VI.*—A man, æt. 70, in good health, presented himself with the right auricle superficially ulcerated. When first seen the breach of surface was of small extent and limited to the helix. The surface of the ulceration was irritable-looking, its edges serrated and everted. This appearance of the disease suggested the possibility of it being malignant in character, and accordingly general tonics and topical sedatives were applied, and the progress of the disease watched. In a few days the patient returned with a report that his condition, so far as he could judge, was unchanged. Examination of the disease on the auricle showed it to be extending rapidly in all directions. Satisfied that the disease, whether malignant or not, would destroy the auricle if unchecked, I applied the strong nitric acid freely to all the ulcerated surface. When the slough, which this produced, had separated, the surface, with exception of a few points, appeared to be more healthy, and the nocturnal pain had been lessened. Again the acid was freely applied to the ulcerated surface, and with the most satisfactory effect. It subsequently healed under ordinary treatment.

Epithelioma of the auricle is comparatively rare. So far as I can gather, there seems to be, in addition to those reported now by myself, only three cases recorded—viz., by Roosa, Orne Green and Velpeau.

*Case VII.—Frost-bite of the auricle.*—A poor, ill-fed and ill-clad man, who was out of employment, attended at the *clinique*. The right auricle on its outer edge (helix) exhibited patches of black and shrunken tissue. This was supposed to be caused by lengthened exposure to a biting east wind. The parts now black were at first white and numb. The low tone of the patient's general condition indicated the principles of treatment. Under full diet, quinine and cod liver oil, the dead integument separated, and cicatrization took place.

*Injuries of the external auditory meatus* usually come under the notice of the specialist as the result of ill-judged and violent attempts to remove a foreign body lodged in it\* In such cases I have found it prudent to trust nature with the repair of the damage so heedlessly made by art; so would I advise others. As a rule, these injuries, often of an extensively lacerated kind, do best with the least treatment. Such is not the case, however, with cases of punctured wounds of this canal. The violent symptoms that follow such injuries demand prompt treatment to avert serious and it may be fatal consequences. The history of the following case is given in illustration.

*Case VIII.*—A boy, *æt.* 10, had a dispute with a school fellow, whom he struck. In retaliation the patient received a blow on the right ear from the boy, who had in the hand with which he struck the blow a penholder armed with a steel pen, which entered the meatus. It was at once withdrawn by a bystander. Thereupon copious hæmorrhage ensued; in consequence of it the boy became faint, and was removed to his home. During the night he was seized with violent pain in the ear, and when I saw him next morning this had increased in severity. The external ear region was now much swollen, and the auricle projected from the side of the head. On examination, a punctured wound was seen in the superior wall of the meatus, at a point midway between the orifice of the canal and the junction of the carti-

\* See my paper in *Brit. Med. Jour.*, December, 1874, "On Removal of Foreign Bodies from the External Auditory Meatus."

luginous with the osseous meatus. Apparently a high degree of inflammatory action had seized upon the loose tissue lying between the cartilage and the mastoid periosteum, and which threatened, I had no doubt, to involve the latter structure if not speedily subdued; this fortunately was accomplished in a short space of time, by unloading the congested tissues. Free local depletion and full opiates were followed by the best effects. Next day the parts, though still swollen, were less painful. A repetition of the treatment and continued rest in bed speedily brought about resolution of the inflammatory action, and in a few days the patient was convalescent. In this case the free and early depletion no doubt averted an attack of mastoid periostitis, which might have had fatal consequences.

The treatment which proved successful in this case might have failed, indeed may fail in a similar case to the one related, to arrest the onward progress of the inflammation. In such circumstances I should recommend the use of the knife freely, either at the site of the injury or over the mastoid process down to and through the periosteum, because I feel satisfied that delay to incise freely, in the manner I speak of, is fraught with danger, a danger understood best by those who have had to treat such cases when they have been left to take their course unheeded. In the treatment of the inflammatory affections of the meatus, especially otitis externa circumscripta, and periostitis of the osseous canal, it is hardly possible to over-estimate the value of early incision of the tissues as a conservative measure, for experience has shown that nearly all the more serious bone affections can arise, and in fact do arise, out of them, and that such sequelæ are preventible by the early and free use of the knife. Nor is the value of free incision of the tissues limited to the acute stage of these affections. In cases of a most chronic character, it has in my hands proved highly successful. Quite recently I had a succession of cases of periostitis of the inner third of the posterior wall of the meatus, and which had resisted all forms of treatment, for periods varying from 3 to 6 months before being seen by



me. After free incision, without exception, about two weeks in each case sufficed to complete the cure. Nor must it be supposed that these cases were slight; judged by the associated symptoms, they were in the highest sense alarming, and might, but for the timely use of the knife, in more than one instance have terminated fatally.

I may here remark that I find it, for several reasons, not requiring notice now, better in cases in which the local abstraction of blood is demanded to apply a sufficient number of leeches at once, and to prohibit after-bleeding by hot stupes as is usually done.

The following case has several points of interest which make it worthy of record. It is reported in illustration of the possibility of recovery after rupture of the lateral sinus, a fact, by the way, not without its value to those who dread to open the mastoid cells in certain forms of ear disease, lest this important vessel be injured in the course of the operation.

*Case IX.*—A healthy girl, æt. 7 years, was running across the street, when she fell on her left side before an approaching horse. The animal, going at a sharp trot, planted his hoof, which had been recently shod, on the right side of the prostrate child's head. She was picked up at once by one of the passers-by and brought to the side-walk, a distance of perhaps thirty feet. It chanced that I was a spectator of a part of the occurrence, and seeing a bleeding child carried in a man's arms, I naturally drew near to render what assistance I could. It was a fortunate thing that I did so, as I feel certain that, owing to the profuse hæmorrhage, the unfortunate child could not have survived more than a very few minutes; too few to have permitted the excited helpers to have fetched the child to a surgeon.

What I saw was this: At a distance of say nine feet, a child lying limp on a man's arms, and a thick jet of dark blood spouting over the clothes of the bearer. When we met, a stream of dark blood, seemingly as great in circumference as the forefinger of a child of the same age as the injured one; the child quite blanched and apparently dying.

if not dead; a wound over the mastoid, from which the stream of dark blood spouted. All this was noted in an instant, and it was but the work of another instant to plug the bleeding orifice with the finger tip, to have the injured child carried into a neighbouring house, to have the wound tamponed, as well as the external meatus, to administer restoratives, and finally, when restored, to send her home.

The child lay for many days in a most critical state. The delirium, pretty constant nocturnal pain, and high fever damped our hopes, but happily when the latter seemed about gone she began to improve. The first rude but efficient dressing was not disturbed till eight days had passed: when it was removed, there was no recurrence of the hæmorrhage, and the wound looked healthy. At first sight it seemed as if a more leisurely examination of the parts would enable me to ascertain the nature of the injury, and the exact source of the great hæmorrhage, which had so nearly proved fatal to the child. All that I could, by careful examination, make out, was an irregularly circular wound in the mastoid region, about half an inch in diameter, opening into the mastoid cells, and communicating with the meatus, which was no more than hurried observation and inference had helped me to at the outset of my connection with the case. A probe could be passed through the external wound into the meatus, and be seen there. So far as I could ascertain, the tympanum and membrana tympana had not suffered injury. For a time, during convalescence, fragments of bone were discharged by the meatus, but the patient made a complete, though slow recovery. The point alone unexplained was:—What was the source of the dark stream of blood? Its character and quantity, together with the site and nature of the injury, in the absence of positive evidence, gave me some grounds for saying that it flowed directly from the right lateral sinus; at all events, I have always regarded it as a case of traumatic rupture of the lateral sinus. The brief history above given furnishes the grounds for that belief, of the reasonableness of which others can judge.

## VIII.—NOTES OF TWO CASES OF STRICTURE OF THE ŒSOPHAGUS CURED BY DILATATION.

By JAMES DUNLOP, M.D., *Surgeon to the Royal Infirmary; Lecturer on Systematic Surgery, Andersonian University, and on Clinical Surgery, Royal Infirmary.*

*Read before the Southern Medical Society in May, 1875.*

A RECENT surgical writer, speaking of contraction of the œsophagus, says, "It is a very common evil, and is usually an insurmountable difficulty to the surgeon, and in the majority of cases rapidly reduces and destroys its victim." The same writer says, "The diagnosis of stricture is generally very easy and sure. It comes on after mid-life. The patient experiences a constant craving for food, but an inability to partake of it. He longs for it, and would at any moment partake of a large meal, if it could possibly pass to the stomach. And the treatment may be summed up in a very few words. If the stricture is organic from cicatrix or other disease, we can offer very little hope of benefit from treatment. The use of bougies has perhaps been followed by some partial relief, but the treatment is at the best unsatisfactory. We cannot recommend the use of bougies in the treatment of stricture of the œsophagus. In its early stage, curiosity may perhaps require to be satisfied by an application, so that the exact seat of the stricture be ascertained, and to such a proceeding there is no great objection. But beyond this, very little, if anything, is gained by such treatment."\* And after pointing out the dangers of attempting to pass a bougie through a stricture in the œsophagus, the writer concludes by saying it is wise to refrain from interference without some certain prospect of good, for in such cases "meddlesome surgery is bad."

Such is the written law on stricture of the œsophagus. And as the two cases of this disease, which I am about to report, are in some points at direct variance with this law, I have thought them worthy to be brought under consideration.

\* Holmes's System of Surgery, 4th vol., pages 147-148.

On the 3rd July, 1874, a little boy, then aged  $7\frac{1}{2}$  years, was brought to me for consultation. His father stated that his boy was subject to what he termed colicky pains, that his appetite had become of late very much impaired, that he was falling off in flesh, and that he sometimes vomited his food. On examination, it may be said generally that nothing unusual was observed in the boy's appearance beyond slight inflammation of the edges of the eyelids and a little enlargement of the glands of the neck. He seemed to have been well nourished and cared for, and his muscular development was good, so that it may be here remarked that the falling off in flesh referred to by the father had neither been great nor of long continuance. The abdomen, however, of the boy was somewhat swollen and distended, and pressure over the stomach gave rise to some pain. There was nothing noted regarding the condition of the bowels, and we may therefore assume that they were regular. Such was the case presented to my mind on the evening of the day above referred to. Believing that the case was not one of very much moment, and that the symptoms were probably dependent upon some disturbance of the gastric functions, the administration of some alterative powders was advised, to be followed by chalybeate tonics and change of air.

On the 30th July, I learned that the boy had been to the coast, and was there very much improved. He still, however, vomited occasionally, and complained of pain in his stomach. I saw nothing of the little patient till the beginning of October, when I was requested to visit him.

On the 3rd of that month I found him in bed, looking very well, so far as colour was concerned, but a more minute inspection revealed the fact that since my last interview he had lost much flesh, and his mother stated that he was becoming weaker every day, so much so that he was now scarcely able to walk. A careful examination of his chest and abdomen did not lead to any change in the diagnosis, or any very decided alteration in the treatment.

On the 11th October he was seen in consultation by several surgeons, who, after a minute inquiry into all the

points of the case, formed the opinion that the boy was suffering from *Tabes Mœsenterica*. And the advice was given that the boy should be removed to the coast, and put upon the same treatment as before. This was done, but there was no improvement. The boy still grew weaker. Nothing would lie on his stomach. No sooner did he swallow food than it came up again. As the emaciation increased, and as the stomach would retain nothing, beef-tea and other forms of nutrient enemata were tried with some success for three weeks.

Dr M'Gown, of Millport, under whose care the boy was at the coast, observed him one afternoon eating and thereafter vomiting what he had taken, and it occurred to him that the food did not enter the stomach at all, and that possibly there might be a stricture or contraction of the œsophagus. With this new idea of the nature of his boy's ailment, the father came to me, and after thinking over the subject, I came to the conclusion that there could be no stricture of the œsophagus present. I recalled to mind that stricture of the œsophagus was not a very common affection; certainly by no means common in young persons like this boy. That there were instances of nervous or spasmodic stricture in hysterical young women I was well aware, for I had had several cases under my own care, which were easily cured by constitutional treatment and the application of a large probang. But I had never seen or read of a case of stricture of an organic kind in one so young. No doubt organic strictures, the result of injury to the lining membrane of the œsophagus, as from swallowing acids and the like, may take place at any age, but in this case there was no such history. Again, organic stricture, the result of malignant disease, such as epithelioma or schirrus, is a morbid condition found in persons of middle or old age, not one of youth. I felt, therefore, that whatever was the cause of the difficulty in swallowing, it could not be stricture of the œsophagus. If, then, it was not stricture, what was the cause of the difficulty in swallowing? Had there been dyspnoea with dysphagia associated with fixed

pain near the spine, and the patient older, I would have expected to have some entrathoracic tumour to account for the symptoms. No doubt tumours polypoid or aneurismal have been known to compress the gullet and give rise to difficulty in swallowing, but these would not explain our case, for no tumour was present. Reason therefore said it cannot be stricture, and the written law was against this view. But prudence suggested the passage of an instrument into the stomach by way of settling the question. Accordingly arrangements were made to visit the boy on the following day. Accompanied by Dr George Buchanan, I visited the boy, whom I now found in a very weakly state, much emaciated, very thirsty, very hungry, able to masticate, able to swallow pulpy food in a certain quantity at a time, which seemed to pass, if not into the stomach, at least in the direction of it. But the food was not swallowed more than two minutes, when, apparently without any effort, it was returned again. This act of swallowing liquids and pulpy food was repeated several times and as often the liquids and pulpy food were emitted, but it was observed that the act of returning the food was not accompanied by any muscular contraction of the stomach or of the abdomen.

On the boy being removed from bed, and put into a suitable position, an ordinary-sized catheter was passed cautiously into the pharynx, and along the œsophagus. When it reached a point just above the diaphragm, further passage of the instrument was prevented. There was there not only an obstruction of a permanent kind, but a pouch as well. The point of the instrument could be made to move about in a considerable dilation of the œsophagus, immediately above the strictured point. A prolonged attempt was made at this time to get a small-sized catheter into the opening, but without success. Day after day I renewed the attempt, but always with the same success, till the seventh trial, when, as if by accident, a No. 1 catheter slipped into an opening in the pouch, and thence onwards into the stomach, where, for a few minutes, the instrument was left. Before withdrawing it, a little wine and water,

and also some cream, were slowly introduced through the catheter into the stomach—the first food which had entered the stomach for several weeks. I need not enter into much further detail of the treatment. Suffice it to say, that the stricture was found to be annular in form and fibrous in its character, and that in three months the stricture was slowly and gradually dilated by means of instruments.

Though several months have elapsed since the case was finished, there have been no signs of a return of the contraction. At this date (25th December, 1875), I have passed a bougie of a diameter of 7-16ths with the utmost ease.

The points of interest in the case just narrated are the following:—The early age of the patient; the obscurity of the cause; the difficulty of diagnosis; the readiness with which the contraction was dilated after an instrument was passed; and the pouch, which seemed sufficiently large to hold about an ounce of food, and which permitted a part to pass into the stomach, thus explaining the absence of emaciation of the body in the early stages of the disease.

Before leaving this case, it may be noted that after the first successful attempt to pass an instrument through the stricture, the boy began to swallow fluid food in small quantities; and at this day he has no difficulty in deglutition, except for pieces of animal food, which still seem to pass through with some difficulty.

The second case is somewhat different, and its history may be narrated in the order in which the events presented themselves to our notice. On the afternoon of the 18th January, 1875, Dr M'Millan asked me to see, with him, a little boy in Pollokshields, who, for about twenty-four hours, had not been able to swallow anything whatever, and in whose gullet there was probably some foreign body, in the shape of food, obstructing the passage. On the boy, who was six years old, being removed from bed, and placed in a chair in front of us, a No. 6 elastic catheter was passed down the pharynx without any opposition; but at the beginning of the œsophagus, at a point corresponding with the level of the cricoid cartilage, there was no further passage of the

instrument. As the point of the instrument was felt to have entered a narrow portion of the gullet, and to have been caught, a little gentle pressure was employed, and the catheter at once slipped through, and onwards into the stomach. On removal of the instrument, the boy at once stated that he was well—whatever had been sticking in his throat had been pushed downwards; and he verified his remark by drinking some water, which he did with apparent ease. After his thirst had been satisfied, a No. 8 catheter was introduced, but it failed to pass the contracted point. A No. 7 also was too large. A No. 6 only could be introduced into the stomach. At the lower part of the pharynx, or upper part of gullet, there was evidently a stricture of a cicatricial kind, and subsequent experience showed that it was very tight.

During the treatment the following information was gained regarding the case:—The boy had always been healthy, and he had the appearance of having been fairly nourished. When he was about three years old he had scarlet fever, accompanied by a diphtheritic condition of the throat. His father stated that the throat had been very bad, and that it had been frequently burned by caustic. The parents had not observed that the boy had any special difficulty in swallowing; but it was a subject of remark, that at table he retained his food very long in his mouth before swallowing it—that bread, more especially, was reduced to a liquid pulp, by repeated mastication, before it was finally swallowed; and that, on some few occasions, when he had to swallow his food rapidly, the boy mentioned that he had a sense of fulness about the neck; but as this sensation did not continue long, it received no particular attention from the parents. Until the moment the boy's gullet became obstructed, while eating at dinner, the subject had not received any thought; and it was only on the forenoon of the following day, in consequence of the boy's hunger and thirst, and inability to swallow, that Dr McMillan was sent for.

Dating from the 18th January, the treatment, by gradual



dilatation, has gone on slowly; and at this date (18th May), a No. 15 catheter can be passed into the stomach. The condition of the boy has greatly improved, and he now can swallow liquid and solid food with considerable ease.

This case is worthy of note from the peculiarity of the cause. The great probability is, that the stricture was due to destruction of the mucous membrane by the caustic.

*20th Dec., 1875.*—This boy has continued well, and a probang, with a diameter of 7-16ths of an inch, was this evening readily passed into the stomach.

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#### IX—A RAPID AND SIMPLE METHOD OF STAINING AND MOUNTING FRESH BRAIN FOR MICROSCOPIC EXAMINATION.

*By* JOHN H. ARBUCKLE, M.D., *West Riding Asylum, Wakefield.*

BRAIN substance is so soft and sticky that, in its natural or fresh condition, it is impossible to cut sections of it, with a knife, thin enough to show all the details of structure. Even when hardened by any plan of freezing, sections cannot be cut so thin as by the ordinary methods of hardening the brain substance in chromic acid, alcohol, or other chemical agents. A film cannot be cut too thin—in fact, the thinner the better—for microscopic examination, especially when any plan of staining is resorted to: the very thinnest sections show little that can be recognised but the blood-vessels, and, till stained, the wealth of structure remains undetected.

The common methods of hardening, cutting, and staining require such an amount of practice, manipulation, and knowledge of details, that at the present time the most reliable slides of brain structure are produced by only a very few men. Solutions of carmine or logwood have been in general use as staining agents. Each have their advocates; but the solutions are so apt to alter in composition and action, that even in the hands of those most accustomed to their use the results are often unsatisfactory and vexatious.

Last year, Mr Sankey described his method of preparing and staining fresh brain substance in a letter to the *Lancet*, and a paper in the "West Riding Asylum Reports." He uses aniline-black as a staining medium; stains the surface of a piece of brain, then shaves away the unstained portion, after it has been allowed to dry on a slide; clears, and mounts in varnish or Canada balsam.

In the aniline dyes we have the best staining agents: they are so permeable, are so readily soluble in water, do not give precipitates, are quick in action, require little trouble to get good results, and can be made of any required strength to a certainty. No brain structure is differentiated by carmine or logwood that aniline does not define, and much more clearly; being so permeable, the minutest processes are better brought out than with either carmine or logwood.

Dr Batty Tuke and others have pressed brain substance between the cover and slide, so as to get a thin layer. When this is done, only the blood-vessels and a mucous-like layer are seen, without anything characteristic. Even staining these with carmine or logwood gave results that were anything but satisfactory. So, hardening with chromic acid solution, and cutting the thinnest films by means of Stirling's machine, have as yet yielded the best results.

By any method of cutting, or drying and planing down, so as to get the thinnest brain sections, the cells, with their processes, are cut through; and it is only when the section is cut in the plane of the cells and their long branches—at right angles to the surface of the convolution—that they are best shown; and even then, in the thinnest-cut films, the cells and their branches ultimately get cut short; while in sections cut thick, or slantingly, very little of the processes get stained. It seems as if the section only gets stained on the surfaces; while if it is stained the whole thickness through, there is little or no differentiation. So, where and how the cell branches terminate, has remained a constant puzzle to those investigating brain structure.

By the method about to be described, all the cells, their

contents and processes, and the whole structure of the brain matter, is better and easier shown than by any other plan at present in use. Brain substance is seen to be made up of cells, blood-vessels, and fibres; and that portion named inter-cellular matrix is seen to be of minute fibrillar structure, and not hyaline or structureless. This I have observed in the brain of pig, ox, and rabbit, as well as man; and as to the pyramidal cells,\* their contents, and the number of their processes, in the grey matter from corresponding parts of the brain in these animals and man, the difference is not very decided, if apparent.

Dr Major—the first authority on the minute structure of the cerebral cortex of man and monkeys—has, in last year's "West Riding Asylum Reports," first described and illustrated a degeneration of the pyramidal cells of the cerebral cortex. The same change I have since seen, both in human brain hardened with chromic acid, and in brain substance prepared in the following method (the Purkinje cells of the human cerebellum I have also seen affected); but as the human brain in these instances was only got, stained and examined, many hours or some days after death, and since perfectly fresh brain—got from animals which I have examined—has been devoid of it, a doubt at present remains in my mind whether the change be really *ante* or *post mortem*.

(*a*) *Preparation*.—The glass slide and cover is cleaned with spirit and liquor ammonia—about half a fluid dram of ammonia to the ounce of methylated spirit—to remove all stains or grease from the glass. A small and thin section of brain is made with a sharp pen-knife or scalpel, previously wetted with water; the section is placed on the slide. The under surface of the cover is well oiled with a drop of oil of cloves, and placed over the brain substance,

\* Although it still remains an undecided question whether there is any difference in size or number of the pyramidal cells, in corresponding parts of the cerebral cortex, in the larger animals and man; these cells, in the smaller animals, are fewer in number and appear to me to be slightly less in size than in man, but nothing approaching to the ratio between the bulk of their brains or the quantity of grey matter.

with the oiled surface next it. It is then pressed till the thinnest film of brain only remains between the cover and slide—portions may readily be got so thin as hardly to be detected with the naked eye, and these stain and show structure best. The whole is then immersed in a small bath or saucer containing methylated spirit, which gradually finds its way between the slide and cover, and dissolves the oil of cloves. After the slide remains in spirit for some minutes it is taken out; a few drops of spirit are put on the slide, and the cover is at one edge steadied with the point of the finger, while, with the sharp edge of a pen-knife, or point of a fine needle, the opposite edge of the cover is gently raised, when the spirit gets between the cover and slide in greater quantity. The cover is then lifted off, and the brain substance is left on the slide in a thin film. If no spirit is used, or no oil of cloves, when the cover is removed only an irregular stippling or daubing of brain matter remains on both the slide and cover; the oil prevents adhesion of the brain matter to the cover, while the spirit toughens the film, so that it is more tenacious. It is an advantage to have the piece of brain small and thin, so that when the cover is pressed down, a thick girdle of brain matter may not be left all round the edge of the cover to interfere with the spirit finding its way between the latter and the slide.

( $\beta$ ) *Staining*.—The slide with brain-film adhering to it is again placed in methylated spirit, or spirit run over it, so as to wash away any oil that may be on it. After allowing it to remain in spirit for a few seconds, it is taken out and all the superfluous spirit run off or wiped off the slide. A drop of solution of aniline—one grain of the granular powder of aniline black, or blue, or other aniline colour to the fluid dram of distilled water, or eight grains to the fluid ounce—is put on the film of brain matter—with a pipette most conveniently. After allowing the staining fluid two or three minutes to act, the slide is put in a basin of clean water: which washes away all superfluous staining solution, and the slide is allowed to remain in the water a few minutes

to wash the brain film so as to get differentiation. The slide is removed, the glass wiped, and placed in clean methylated spirit or absolute alcohol to still further wash the brain film and dehydrate it.

(7) *Mounting*.—It is mounted according to Clarke's method. The slide having been allowed to remain ten minutes or a quarter of an hour in spirit, the film is cleared with a drop or two of oil of cloves, and when transparent, all the oil is run off, the slide cleaned, and a drop of Canada balsam dissolved in benzole put on the brain film, then the cover placed over it, and when allowed to dry it is permanently mounted.

The whole process is gone through with the film while it adheres to the glass slide, and does not occupy many minutes. Should any portion of the film remain on the glass cover after it is removed, it may be stained, washed, and cleared in the same way as that remaining on the slide, and mounted if desired.

The fresher the brain is used the more adhesive it is, the easier to work with, and the minutest branches of the cells and the other structures are then seen at their best. Fresh brain of a pig or ox may be got from a butcher, the head has only to be split open soon after death, when any portion can be got at. The method is equally handy for the examination of cerebellum, spinal cord, or nerve.

It is undoubtedly a disadvantage to have the relations of the structures displaced—the thinner the section is cut there is, of course, the less displacement—and the plans of hardening in use may have to be resorted to when sections are wished to shew the relations; but for the minute details of structure the advantages of this method are out of all comparison with those in use.

For slow staining with aniline, weak solutions, and for rapid work, strong solutions must be used, as is the case with other staining fluids.

Structure is even shewn, but only roughly defined, by placing a drop of strong solution of aniline (10 grains to the dram of water) on a small piece of brain substance on a

slide and the cover gently pressed down. Or pressing the brain first, then allowing a few drops of staining fluid gradually to diffuse between the cover and slide, as described by Mr Bevan Lewis in the *Medical Times and Gazette* of 3rd March last; but the differentiation is found not to be uniform, the staining is irregular, and the risk is great of entirely losing the result got when it is attempted to get the cover off to mount permanently with Canada balsam; and if the brain substance is not permanently mounted, it dries and is spoiled—leaving only a stained stippling of brain matter between the cover and slide.

The plan will be as applicable for examining brain matter of birds, fish, and the smaller animals. Comparatively, little has been done, as yet, in the histology of the human brain and those of animals, on account of the difficulties met with in thoroughly examining fresh brain. In short, the naked-eye differences between the brains of man and animals—their comparative shape, size, weight, depth, and number of convolutions giving more or less cell elements—are a very long way ahead of any microscopic differences that have been at present made out.

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## Reviews.

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I.—CONTRIBUTIONS TO THE MECHANISM OF NATURAL AND MORBID PARTURITION, INCLUDING THAT OF PLACENTA PRÆVIA, WITH AN APPENDIX. *By* J. MATTHEWS DUNCAN, M.D. Edinburgh: Adam & Charles Black. 1875.

AT a time when the reputation of an obstetrician seems, more or less, proportionate to the mystery in which he shrouds his professed "science," it is particularly refreshing to meet with such a book as that now before us. Dr Duncan is already so well known as an obstetric writer, that when we say the present work is calculated materially to advance his claim to the highest rank among careful and scientific investigators, it will be recognised that we can pay it no greater tribute. No branch of medicine so much as obstetrics has suffered in the past, from careless research and rash theory, and no branch shows a fairer prospect of better days in store. But, there are nails, fastened by the hands of masters, and doubly riveted by succeeding generations, many of which have to be unriveted and cast aside, only to rust in curious histories. There are theories—facts, we were accustomed to call them—which have proved dangerous untruths, and must be demonstrated to be such—truly, the modern student of obstetrics must be eminently a sceptic. Carlyle has described the fitting weapons of the sceptic as "a torch for burning, and a hammer for building," and in the use of both Dr Duncan proves himself efficient. If his torch sometimes burns a little fiercely in the presence of error, his hammer is no less potent to strike conviction.

It is difficult work, this burning which we require of him, for he, as well as his readers, has grown up in the faith which he is called upon to destroy. Nothing short of absolute demonstration can effect the change, and such demonstration, we must admit, he either works out, or very fully indicates. That all will not admit his demonstration, is to be expected: that some will cavil at his results, is but the lot of every scientific observer.

The book under review is a collection of papers read at various times; and, in many cases, separately published: but they admit of a rude classification into series. The first series treats mainly of the expelling powers. The second refers more particularly to what is commonly known as the mechanism of parturition. The third to the placenta, in its

natural condition, and when *prævia*. The appendix contains his address to the British Medical Association at Norwich, and will be acceptable to those interested in the recent discussion on puerperal fever.

The subject of the first series, the expelling powers, has not attracted much attention in this country, but, at various times, rude guesses have been made at its solution—even the prying pruriency of Sterne could not resist some speculation upon it. Duncan, however, has the merit of being the first to provide us with actual results, and his mode of procedure deserves some little detail.

To estimate the power exerted in ordinary labour he propounds this syllogism—

The power required to rupture the bag of membranes is greater than that necessary to the expulsion of the fœtus, because the power acts in the latter case to greater advantage. It is possible to calculate, by experiment, the power required to rupture the membranes. Therefore, the power, found by experiment to be necessary for this purpose, is in excess of that exerted in ordinary labour. One hundred such experiments are given in detail, and the ultimate result arrived at is, that 37·58 lbs. is the greatest tensile power among the amnions used (to which must be added 4 lbs. for the chorion); that 4·08 lbs. is the lowest; and 16·73 lbs. the mean.

We cannot here enter upon the discussion by which he substantiates his major premiss, but we may be permitted to say a word upon his minor.

1st.—The highest figure stated is 37·58 lbs. Now we find that another satisfactory experiment, *with a piece of the same amnion*, gives a tensile power of merely 28·96 lbs. Thus it would appear that the tensile power of the weakest part of the sac was only 28·96 lbs., and, unless it can be shown that this weak point was otherwise supported, we must assume the latter figure as the tensile power of the sac.

2nd.—There is the doubt whether after death the tensile power of the membrane is unchanged. In another place Dr Duncan refers to this objection, but he discards it simply upon negative grounds.

3rd.—If a 24th column were added to the table of experiments, stating how long after delivery the membranes were tested in each case, we might have some more positive reason for dismissing the preceding objection. In corroboration of this suggestion we may add, that the earlier experi-



ments seem usually to indicate the highest power in each individual membrane.

In natural sequence to this chapter, we have another upon the power capable of being called into action in extreme cases. We are justified in concluding that Dr Duncan considers all cases extreme in which the expulsive forces exceed the power required to rupture a membrane of the tensile strength above mentioned. The experimental evidence upon this subject is less definite than upon the preceding, but the extreme power is more or less satisfactorily stated at 80 lbs. One further experiment is suggested by his own words in another chapter. Speaking of the perforation of the placenta by the head, in some cases of placenta prævia (page 354), he questions whether the placenta is not thinned at the perforated point. Now, it appears to us that some experimental information might be obtained concerning the force necessary to cause the head to perforate the placenta. For, although the estimate so obtained would be certainly in excess of the true one, it might fall below that stated by Haughton or Sterne.

The conclusions deducible from these experimental chapters are summed up in an admirable essay on the "Efficient Powers of Parturition." These conclusions we give in his own words:—"I have ample reason, then, in such experience, to believe that very few of the most powerful labours exert a force of 50 lbs., . . . "that the majority of labours are accomplished by repeated impulses, whose highest power never exceeds 25 lbs." This result is markedly below that stated by other authorities. Referring to one of these, he calculated, that the force ascribed by Professor Haughton (580 lbs.) would give to the fœtus, leaving the vagina, an initial velocity of 36 feet per second—an observation which cannot fail to remind one of recent experiments in gunnery.

It is with great regret that we pass over the remaining chapters of this series, all of which are replete with valuable information.

In the preceding series, Dr Duncan has been, in great measure, dictating his own conclusions; in the one to which we now refer, he has, in addition, to contend with previous theories. We cannot quite tell why Chapter III. should not have found its place among these. An essay on "The Curves of the Developed Genital Passage" would surely have been more suitable here than the disjointed position which it occupies. As the order stands, he prefers to open the discussion

with a treatise upon the state of the pelvic joints in parturition. None of his predecessors in this much-vexed question have taken up so strong a position as he does, and his strength lies in this. Instead of asking us to assume great changes in the articulations, due to pregnancy or approaching parturition, he proceeds to show, by careful anatomical details, that in the non-pregnant state the joints are admirably adapted to a limited degree of movement in particular directions. Having accomplished this, the step to a somewhat increased movement is easily made. The criticism of the operation of symphyseotomy, which concludes the chapter, though less sweeping in its condemnation than the usual opinion, is well timed.

Having disposed of the pelvis, the fœtal head next comes under consideration. Here the difficulty of previous theory meets him at the threshold. Naegele's obliquity, and Kunecke's synctitic movement, require to be met and refuted. Towards the former task, he gracefully acknowledges the assistance of our Regius Professor of Midwifery, but in the latter he has no British obstetrician to aid him. Observation in the first instance, and anatomical detail in the second, fortify the position he assumes.

The production of face presentations, that Chinese puzzle of which most obstetricians believe themselves *only* to have found the solution, merits and obtains a chapter. Hecker's dolicho-cephalous fœtus is admitted a valuable aid, with the reservation that it does not always exist. Dr Duncan calls particular attention to the effect of a right lateral obliquity of the uterus upon a second cranial position, or of a left obliquity upon a first. The production of face presentations in cases of contracted conjugate diameter, he refers to the transference of the pivot from the occipito-atlantoid joint to the biparietal diameter. The manifest conclusion is, that face presentations may be the result of various causes, most of which have been described, and ought to be distinguishable in individual cases.

In the third series, Dr Duncan finds it not only necessary to correct some of the many errors which had their origin in the belief that during pregnancy the cavity of the cervix formed part of the general uterine cavity, but also to devote a chapter to the natural delivery of the placenta. This particular chapter was published in the *Edinburgh Medical Journal* some four years ago, and attracted a good deal of notice. On reading it at that time, it occurred to us that if Dr Duncan's mechanism were true, the appearance at

the "os" of the maternal surface of the edge of the placenta ought to be evidence of its complete separation. To this rule we have since confined ourselves, without, in a single instance, failing to verify it. It is at once more scientific and more satisfactory than those in common use.

The majority of the remaining chapters bear upon the subject of "Hæmorrhage in Placenta Prævia: its Causes, Sources, and Arrest." Dr Duncan's relations to the late Sir James Simpson give to these chapters a very special interest; and we cannot but congratulate the profession that the weighty opinions of the late Edinburgh obstetrician should have found so able a critic in the present.

The essay on the production of "Inverted Uterus," which we have purposely displaced, maintains a view directly opposed to that at present in vogue, inasmuch as the involuted part is assumed to be the paralysed one. They are at one so far, that both recognise a partially-contracted and partially-inert uterus; but in the localisation of the activity, they are directly opposite. Dr Duncan recognises the possibility of a spontaneous return of the inverted uterus; and we think that a little more detail on this subject would have added force to his description of the mechanism of the production.

As a whole, the book is one of those pioneer works which are symptomatic of an advancing science. It is the direct antagonist of aphorism, and yet has simplified truth as its final aim. It is precisely one of those works which in time must realise Levret's *ultimatum* of a theory of obstetrics "susceptible of geometrical demonstration."

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II.—QUAIN'S ELEMENTS OF ANATOMY. Eighth Edition. Edited by WM. SHARPEY, M.D., ALLEN THOMSON, M.D., and ED. SCHÄFER. Vol. I. London: Longmans, Green & Co. 1876.

IN the course of passing through successive editions, scientific books display a tendency to corpulence, which seems inherent; but happily for the reader, the overgrowth is, as a rule, put a stop to, by the displacement of the book by newer and more pithy works, not yet grown obese. The day is we hope far distant when "Quain's Anatomy" shall be so unwieldy as to be unable to keep its place at the head of our English anatomical works; yet we think that we can

detect an overdistension of the present, as compared with past editions, which, if not carefully watched, may end in unpopularity. It may indeed be said, and with justice, that anatomy can only be learnt on the dissecting table, and that it is desirable to give the student—more especially the student of the really earnest type—full, clear, and elaborate description to guide and supplement his practical studies on the *cadavre*. But this must not be overdone, else the student becomes sated, and even confused, with excessive detail.

The first volume of the new edition, in preparing which Dr Allen Thomson has been assisted by Mr David Knox, and by Mr Henry E. Clark and Dr Gowers, is published in the meantime separately. In it is included the whole of the purely descriptive anatomy; the heart being treated of in the second volume, while the description of the nerves is brought into this one. A carefully compiled index is attached to the first volume; and if we add that the arrangement of the paragraphs has been rendered more clear by the use of bolder types for the headings, it will be seen that the present volume is more easily consulted than its predecessor.

The illustrations have been increased in number; and the surgical hints are now incorporated with the anatomy of the regions to which they refer. It is particularly pleasing to find that the new illustrations are nearly all original ones by Dr Allen Thomson, and not copies from French or German works. We welcome this as a healthy and reliable symptom of real progress, and we are sure that original illustrations carry with them a greater value and instruction than any borrowed ones, however fine they may seem to be.

Many of these new illustrations are in the section on the bones and joints, and here we come upon a considerable addition of new matter in the shape of an abstract of the literature of the homologies and the morphology of the segments of the body, carefully worked out and abundantly illustrated. This new matter is added in fragments to the end of the various divisions of the descriptive anatomy of the skeleton and muscles, and it will no doubt prove interesting to those who busy themselves with what may be termed the metaphysics of anatomy. We would merely suggest as a possible improvement that this matter should be collected into one place; an arrangement which would also suit the notes on ossification, both of these tending to cut up and separate too much the descriptive anatomy of

the skeleton, which is the first, and for a time the chief object of the student's notice.

The description of the skull as a whole in reference to the national differences in skulls is more detailed, and several woodcuts have been added which much facilitate the understanding of this important and interesting question.

Passing now to the muscular system, we find that the action of the intercostals in breathing has been retouched, and reference made to recent observations. The question is left in a partly undecided state, favour, however, being given to Haller's view, that both the external and internal intercostals raise the ribs, and stress is laid on the absence of the respective muscles, anteriorly and posteriorly. The possibility of the oblique and crossing directions of the fibres of these muscles being meant for steadiness alone is not referred to; while the results of actual observations on rabbits (see *Handb. of Phys., Laboratory*, p. 296) are passed over. This part seems to us to be in want of free excision, with substitution of an expression of a more definite opinion.

A good and useful addition has been made to the description of the arterial supply of the brain, which in the last edition was very defective. The studies of Duret and Huebner are well epitomised, and the reader will now be able to follow out accurately the blood supply of the districts of the brain. In these days of localisation of function, the arterial supply of the nerve centres has assumed a greater importance than it formerly held, in a pathological point of view—the lesions of the individual blood-vessels affecting, by hæmorrhage, etc., special districts, and through them inducing special derangements of function. This subject of localisation cannot be said to quite cleared up; but it is gratifying to find our standard text book meeting, with concise but full information on this head, the newer wants of those engaged in such observations. (A typographical error has here escaped correction, *post. cereb. arterics*, should be *artery*.)

Throughout the study of this new edition, which we fully admit to be a splendid monument to the authors of it, we have been anxious to find more topographical anatomy. While, for example, the question of homology, which not one in fifty of the readers will care for, has been carefully done justice to, we miss, as practical obstetricians, full notice of the topography of the pelvis. There is no illustration of the brim of the pelvis with the muscles related to it as a whole. It is known that an opinion is held, that

the psoas muscle in its course to the femur overlaps and narrows the transverse diameter of the brim, whereas observation of the actual position of parts in the dead body shows us that the muscle does, and can, only narrow the oblique diameter: Yet, if we turn to "Quain's Anatomy" we cannot find anything which will clear up this important practical point.

We might, also, look for, in our leading work, some use of the method so successfully employed by Professor Braune, of Leipsic, of cross-cutting the frozen body, and so getting, not diagrams, but exact drawings of parts *in situ* at various levels. This method is, indeed, more useful in the internal anatomy: but one or two sections of the neck and limbs thus made, might have been useful in showing the relations of the parts.

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III.—DISEASES OF MODERN LIFE. *By* BENJAMIN WARD RICHARDSON, M.D.,  
M.A., F.R.S. London: Macmillan & Co. 1876.

THIS book is no doubt possessed of great merit, but we cannot accord it unqualified praise. In the preface the author states that the work is the publication, in a collected form, of a series of essays which appeared some years ago, and that it is "avowedly written for the study of the intelligent public, as well as for medical men." Neither of these statements is calculated to give one a bias in favour of the book. But a careful examination of its pages shows it to abound in material of great interest and importance, although many of the views and statements contained in it are open to doubt and serious objection, and in some places the writer seems to yield to the spirit of poetic imagination, rather than to that of scientific truth.

Dr Richardson divides his book into three portions. Part the first is devoted to the consideration of "Phenomena of Disease, incidental and general." We are told that if we lived in accordance with nature's laws, our death would be as free from apprehension and suffering as our birth, and the grief of our sorrowing friends would, as it were, be reduced to a minimum. Notwithstanding the poetic description of senile decay, which our author furnishes, we are very much disposed to entertain doubts as to the pleasures of the "second childhood." A consciousness of failing power

cannot be a source of happiness or satisfaction to a man, and there are few more painful or melancholy spectacles than that of a once powerful mind and body tottering to their fall.

We can only allude briefly to some other points in this part of the work. Dr Richardson believes that we have always had the same diseases on the earth (p. 15). Speaking of race, he ascribes the longevity of the Jews and their escape from the epidemics which play havoc around them, to their "soberness of life" (p. 22). "The germ theory as applied to the spreading diseases," finds no favour in his eyes. His theory is that the "organic poisonous particles are derived from the secreted fluids of animal bodies themselves" (p. 88). He seems to believe that infectious diseases may originate *de novo* (p. 89), and they are, in his opinion, "*glandular diseases.*" "Scarlet fever is a disease of the lymphatic glands; measles, of the mucous glands; typhoid, of the closed intestinal glands" (pp. 94, 95). Some interesting remarks are made regarding the influence of season and atmospheric conditions on health (ch. v.).

In part the second the author treats of the "Phenomena of Disease, induced and special." It constitutes the greater bulk of the book. In the first place the terrible results of *mental strain* are pointed out. To this cause are attributed "Broken Heart," "Dementia," "Paralysis," "Diabetes," "Hysterical Disease." Some of the pictures of human suffering which are presented are positively ghastly, and, we humbly submit, not in any way calculated to benefit the general reader. They may possibly gratify a morbid taste—they may arouse the apprehension, or increase the misery of nervous sufferers—but we fail to see what advantage can accrue to the non-professional mind from a contemplation of such delineations. For example, are we to understand that the following is meant for "the study of the intelligent public" (p. 135):—"These paroxysms may go on, even for years, without creating great alarm: at last they are intensified. During their presence the patient grows sick, pale, and cold, and has sometimes sharp pain in the stomach and bowels. The sufferer himself describes, at this stage, that he feels as if his chest were in a vice, compressed and fixed. There is darting pain through the chest—cramp; the limbs and bowels often are cramped; and one or other limb, especially the left arm, is extremely painful. But the great symptom is the terrible dart of pain from the breast-bone through the chest, to a point a little above the middle

of the back. Under this pain the face is stormed with anguish, and a restless movement is exhibited, as if to dare to breathe were to kill, and not to breathe were to die. At last, in one of these paroxysms, dissolution actually occurs. I have known three broken-hearted men who have suffered this death." The evil results of severe and prolonged *physical strain* are brought prominently forward, and the remarks on this subject are worthy of careful consideration. While discussing the effects of combined *mental* and *physical strain*, Dr Richardson calls in question the good results of the Volunteer movement, which, in his opinion, tasks those who are already over-tasked. We cannot follow our author in the discussion of the influence of railway-travelling, card-playing, anger, grief, narcotics, &c., &c., but must content ourselves with a few remarks on his estimate of the effects of *alcohol* and *tobacco*. It is pretty clear that Dr Richardson is no friend to the use of either of these agents. Tobacco, as producing only functional disease, is let off with a moderate castigation. The smoker is treated with a mixture of toleration and contempt, and his favourite weed is put on its trial, charged with producing, among other disorders, cancer, chest disease, dyspepsia, and heart disease. The charge regarding cancer breaks down. It is admitted that epithelioma of the lip may be caused by smoking a short pipe, but the blame attaches to the pipe, not to the tobacco. The case of chest disease also falls through. The evidence fails to convict tobacco of being a primary cause of chest disease. But the author does not deny that it does harm in such cases. The verdict in the case of dyspepsia is "guilty." As regards heart disease, tobacco is pronounced guilty of functional disorder, but acquitted of the graver charge of organic disease. But when we come to the consideration of alcohol we find the lash applied with a strong hand. Alcohol causes not only functional but organic disease. As a result of its use we have dyspepsia, eczema, heart disease, alcoholic phthisis, disease of liver, diabetes, calculus, cataract, insomnia, epilepsy, paralysis, mania. Now, we do not seek to deny that, in the case of many persons, the use of alcohol is attended with the most disastrous consequences. No doubt it may, directly or indirectly, cause a development of some or all of the above formidable diseases. But we think that Dr Richardson's statements are too broad—too sweeping—and that his enthusiasm carries him too far. It seems to us that alcohol gets more than its fair share of blame, while other wide-



spread influences, such as scrofulous and syphilitic taint, are too much left out of view. But let it not for a moment be supposed that we call in question the terrible results of an improper use of alcohol. At the present day, when a vicious indulgence in stimulants is such a wide-spread and deeply-rooted evil, he who would ignore or strive to palliate it should be regarded as an enemy of his race. It is the duty of every right-thinking man to lend his voice and influence to lessen the great and rapidly-growing evil which is destroying the health and happiness of a large portion of mankind. But while giving Dr Richardson full credit for praiseworthy design and honesty of purpose, we must repeat it, as our opinion, that he permits himself to be carried too far.

Part the third contains a "Summary of Practical Applications" which may be pronounced good when taken *cum grano salis*.

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IV.—NOTE-BOOK OF MATERIA MEDICA, PHARMACOLOGY, AND THERAPEUTICS.  
By R. E. Scoresby-Jackson, M.D., F.R.S.E. Third Edition. Revised, enlarged, and brought down to the present date, by Angus Macdonald, M.A., M.D. Edinburgh: Maclachlan & Stewart. 1875.

IN compiling text-books of materia medica, it is undoubtedly a matter of no small difficulty to do justice to the several departments of pharmacy, chemistry, botany, and therapeutics, without giving undue prominence to either. Hence it happens that works which receive the highest commendation from pharmacists and chemists are seldom found on the library shelves of practitioners of medicine, and receive anything but flattering criticism at the hands of medical journalists. In the book at present under review, this difficult task has been accomplished more successfully than in any other kindred work with which we are acquainted. While all sections of materia medica receive their due share of attention, no one is exalted above the rest. The botany is strictly confined to the essential characters of the plants, their *habitat*, and the mode in which the officinal part is obtained. The chemistry consists of a full description of the decompositions which take place in the manufacture of the officinal preparations, these being always given in the new notation—an example which the compilers of the British Pharmacopœia would do well to imitate; tests for purity of

the drugs are invariably given, and their *rationale* explained. The therapeutical portion of the work is full and complete, and contains a description of the properties and uses of many recent additions to the physician's *armamentarium*—such as amyl nitrite, cicimifuga, chloral hydrate, &c. We do, indeed, fail in finding any notice of the more recent croton-chloral, camphor monobromide, and rhamnus frangula; and both jaborandi and gelsemium are conspicuously absent, possibly for much the same reason as was given to account for Tilburina not being able to see the Spanish fleet—namely, because at the time the work was preparing they “were not yet in sight.” To pharmacutists this manual presents one prominent advantage: it contains the full text of the British Pharmacopœia—thus obviating the necessity of reference to two books, as is commonly the case.

Of the present edition we have nothing especial to say, excepting that it contains the new officinal preparations contained in the supplement to the British Pharmacopœia, which we are sure would be more extensively used if their composition and uses were more widely known. Besides this, the work has undergone a general revision, and additions made wherever there were really noteworthy facts to record. We are sure that students of *materia medica* will not find their confidence misplaced if they rely on the work now before us.

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V.—THE WEST RIDING LUNATIC ASYLUM MEDICAL REPORTS. Edited by J. CRICHTON BROWNE, M.D., F.R.S.E. Vol. V. 1875. London: Smith, Elder & Co.

IN this volume of the reports, the subject of epilepsy again bulks largely, and we are glad to find another of those suggestive papers by Dr Hughlings Jackson. His paper is entitled, “On Temporary Mental Disorders after Epileptic Paroxysms.” The importance of epilepsy and the mental affections which result from it, may be judged from these facts:—Reynolds says that seven per cent. of all nervous cases are cases of epilepsy, while Bucknill and Tuke assert that six per cent. of the inmates of Asylums owe their insanity to epilepsy. The insanity of epileptics is often violent.

The present paper, however, is not directly concerned with confirmed insanity resulting from epilepsy, but rather those

transient disorders which occasionally follow the individual attacks. Of all these the general characteristic is, that "*they are automatic*; they are done unconsciously, and the agent is irresponsible, hence I use the term, *mental automatism*." This is the key-note of the author's theory of these conditions. The epileptic fit is a discharge by nerve centres, and the part which has discharged is temporarily paralysed after the discharge. During this temporary paralysis the centres below these are, as it were, set loose; they are out of the control of the higher centres, and may act automatically without the patient being conscious of the action. In epilepsy the discharge begins in the higher centres, and may stop there, or proceed to the lower. The subsequent paralysis of the centres will be according to the nature of the fit; if the fit has involved only high centres, then the paralysis will only affect the high centres. If we use the word evolution to express the building up of successively higher nervous centres, then we may use the term dissolution to indicate the taking down of such centres from above downwards. As a consequence of the epileptic fit, we have this process of dissolution, and sometimes it is shallow, sometimes deep. From these observations an important practical consideration follows. We have already remarked that the centres lower than those which have undergone dissolution, being set free, act automatically. Then it follows that the shallower the dissolution the higher will be the centres which will thus act automatically, and the more complex will the actions be. That is to say, the slighter the fit, the more will the subsequent actions, though automatic, resemble those of consciousness. It will be observed that all this involves that such actions always *follow* a fit, but the fit may be so slight as to pass unobserved, and the action may be supposed to replace the fit. This matter is of so much importance that we are induced to quote the following case. It will be observed that the severe attacks were followed by a sound and prolonged sleep, the dissolution was deep and extensive, while the slighter were followed by something like somnambulism:

"Several years ago, an educated man, 31 years of age, was under my care, at the Hospital for the Epileptic and Paralysed, for epileptic seizures—using, as I do, throughout this lecture, the term 'epileptic' according to the accepted definition. He became unconscious, and bit his tongue in the severe fits, and slept several hours after each of these. He had had about sixty severe attacks. But he had, also, very frequently, what he called slight 'seizures.' It is of these I wish to speak. These slight seizures were of different degrees. He used the words,

‘slight,’ ‘strongish,’ and ‘strong,’ to describe his fits in the lists he supplied me with. After the slight attacks he did not sleep; we may almost say that instead he dreamed only, or was somnambulistic. The following is a note written by him. The italics represent parts he underlined.

“‘20th. Unconscious? for perhaps three-quarters of an hour; remember *ordering* dinner, but not *eating*, or paying for it, but did *both*, and returned to the office, where I *found myself* at my desk feeling rather confused, but not otherwise ill; *was obliged to call at the dining room to ask if I had been ill, and if I had had any dinner.* The answer was *no* to the former, and *yes* to the latter question.’

“The following is the instance which makes the case most valuable:—

“‘My wife and her sister being present, had been talking about supper, when it was agreed that my wife and I should have some cold fowl, and the sister some cocoa if there were any fire. She went into the kitchen to see, and reported that there was one. Soon after I began to feel chilly after being so warm with gardening, and I said I would go down to the fire. I did so, and after standing there a few minutes, I felt symptoms of an attack, and sat down, I believe on a chair against the wall. And here my recollection failed, the next thing I was conscious of was being in the presence of my brother and mother (who had been sent for, as they lived opposite), and I have since been informed by my sister-in-law that she came into the kitchen, and found me standing by the table mixing cocoa in a dirty gallipot, half filled with bread and milk intended for the cat, and stirring the mixture with a mustard spoon, *which I must have gone to the cupboard to obtain.*’

“‘This caused them to send for my friends, to whom I talked, showing no surprise that they were there, and entirely unconscious of what I had been doing until told this morning.’ . . .

“The bearing of this case is that if the automatism instead of being a caricature of innocent normal actions, had been criminal, and equally elaborate, the patient would have had a bad chance of escaping punishment.”

There is a paper, by Dr A. M. Wallis, on the use of chloral hydrate in convulsions. The author concludes that this agent is of advantage in all forms of epileptic convulsions, the principal instances of which he divides into three groups, ordinary epilepsy, epileptic convulsions from cerebral hæmorrhage, and

those which occur in general paralysis. In another paper, by Dr Newcombe, the occurrence of epileptiform seizures in general paralysis is the subject matter. Observations and statistics are brought forward to illustrate the prevalence of such seizures, the age at which they are most common, the sex, &c. The paper contains many illustrative cases.

A very praiseworthy article occurs "On the Influence of Diet on Epilepsy," by Dr John Merson. The author subjected twenty-four epileptics to a dietetic experiment. He divided them into two groups of twelve each, and for a month he gave one group farinaceous diet, and the other nitrogenous. At the end of this month he reversed the experiment, giving nitrogenous diet for a month to group No. 1, and farinaceous to group No. 2. The general conclusion come to is that of these twenty-four patients, fourteen showed a decided decrease in the number of fits during a farinaceous diet, the average number of seizures of these fourteen in the farinaceous period being 20·7, as against 28·3 in the nitrogenous. He also tried the effect of phosphorus along with the farinaceous food, but did not find any advantage from its use. The author considers that "there are fair grounds for the conclusion that a farinaceous diet is likely to be more useful in the treatment of epilepsy than a nitrogenous; but in order to get satisfactory results, observations would have to be extended over a longer period than was at my disposal in the present instance." It should be added that these experiments were suggested by a speculation of Hughlings Jackson as to the chemical constitution of the brain in epilepsy. He suggested that in epilepsy an atom of phosphorus may possibly be replaced in the complex chemical principles by an atom of nitrogen, the constitution of the brain substance remaining the same, but its actual composition being different. In this case the new compound would be more unstable than the original one. A diet poor in nitrogen might be expected to restore to some extent the normal condition.

There are several papers on various points connected with general paralysis, but these are mostly of merely special interest. One is on the histology of the sciatic nerve in this disease, and another on the state of the larynx. The author of the latter paper has examined fifty patients, and here tabulates the conditions found.

The editor contributes a paper on "The Functions of the Thalami Optici," in which he endeavours to connect the results of pathological observation with the deductions from

physiological experiments. After a review of the course of the nerve fibres and connections of the thalamus, he proceeds to consider the functions of this ganglion. The most important deductions from pathological observations are contained in the following sentences:—"Whenever ordinary paralysis of one side of a pronounced character has associated with it, annulment of reflex action and of sensibility in the powerless extremities, I do not hesitate to conclude that the central lesion is localised in, or extends into, the optic thalamus; and whenever paralysis of the same kind co-exists with unimpaired or but slightly enfeebled reflex activity and sensibility, I feel tolerably certain that the morbid change is confined to the region of the corpus striatum. The enfeeblement or abolition of reflex excitability in those cases in which the optic thalami are implicated, may affect both the upper and lower limbs, but almost invariably it is found to exist in the feet and legs to a much more marked degree than in the hands and arms. Pinching and squeezing the toes, and applying heat, cold, and electricity to them, will sometimes fail to cause the slightest movement, while the same treatment of the fingers will be tardily followed by muscular contractions." It will be seen from this quotation that the author agrees with Ferrier in considering the thalami centres for sensory impressions, differing in this, however, from some other weighty authorities.

Dr Ferrier contributes a paper on "Labyrinthine Vertigo, Menière's disease." The paper opens with a case of this disease, which is followed by a discussion of the functions of the semicircular canals, and their affection in the disease in question. The chief symptoms in his case were these—"Occasionally while walking along a road, or otherwise engaged, he would be suddenly seized with giddiness and faintness, and a feeling as if he was being whirled to the right. He never actually fell, as he always succeeded in laying hold of some support, so as to counteract the seeming rotation. During the attack, external objects seemed to be whirling to the left. The vertiginous attack coincided with a buzzing or ringing noise in the left ear." These symptoms along with a feeling of nausea or positive sickness, with great constitutional depression and faintness, may be taken as characteristic of disease of the semicircular canals. The affection depends on irritation of these, and generally coincides with a certain amount of deafness. A peculiarity in this case was that the patient could hear the sound of a

tuning fork vibrating in the air as well with this ear as the other, but there was absolute insensibility on the left side to the vibrations of the tuning fork placed on the bridge of the nose or any other part of the skull. The symptoms generally disappear after a time, and their disappearance is usually coincident with the occurrence of perfect deafness. In fact, the symptoms are due to irritation, and if the disease goes on to destroy the parts, they disappear.

The remaining papers in this volume are—On the physiological action of hyoseyamine, by Robert Lawson, M.B. On the appearance of the retina and choroid during the administration of certain drugs, by John Hunter Arbuckle, M.D. Othæmatoma, or the insane ear, by Lennox Browne, F.R.C.S. On the morbid histology of the brain in the lower animals, by Herbert C. Major, M.D. Cerebral hyperæmia, by J. Milner Fothergill, M.D. A new process for examining the brain structure, with a review of some points in the histology of the cerebellum, by H. R. Octavius Sankey. Note on chronic mania (with a photograph), by J. Crichton Browne, M.D.

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VI.—LECTURES ON STATE MEDICINE. Delivered before the Society of Apothecaries. By F. S. B. FRANÇOIS DE CHAUMONT, M.D., *Conjoint-Professor of Military Hygiene, Army Medical School.* London. 1875.

THESE lectures are six in number, and therefore do not cover all the area of "State Medicine," but they are interesting and instructive, and worthy of the accomplished lecturer.

The first lecture is historic, giving a sketch of the state of matters disclosed by the Health of Towns Commission in 1844, and of the subsequent legislation. We miss any allusion to the honourable place occupied by cholera in the sanitary history of our country. After reading the more striking descriptions of the abominable condition of many important towns, as well as of the country generally, one is amazed that life is possible under such circumstances. Yet it is not the chronic ill-health and the quiet death-rate arising therefrom which rouses into activity. The Bridge of Mirza, with its numerous trap-doors, from time to time giving exit to individual lives, does not attract much attention. It is the paroxysmal apparition of the epidemic, the wide-slaying arrows of Apollo showered upon the camp.

which startle and rouse to action. This is a most important fact to be put well to the front in every history of sanitary legislation. It gives to those epidemic diseases their proper place in the divine government of the world. They are plagues, chastisements bearing fruit in the removal of causes of chronic ill health, which in their quiet and insidious operation over long periods are more fatal than in their spasmodic activity. Hence it is that sanitary effort directed to the prevention of epidemic disease becomes the key to permanent general improvement of the public health. The public are gratified by the limitation of those alarming diseases, and at the same time they get the benefit of the general improvement which invariably accompanies the abolition of the conditions of dirt and carelessness, which, but for those violent explosions, would continue to devour the vitals of the community.

The lectures on the air, water, and soil, in their relation to public health, are very good. They furnish scope to the scientific accomplishments of the author. In reference to water, the most valuable statement is this:—"If we find a good deal of organic matter present, with only a small amount of chlorine, we may conclude that sewage in the solid or liquid form has not been the cause, but that in all likelihood the source of impurity is gaseous." In Glasgow it is a most extraordinary fact that, after going so far off as Loch Katrine to get pure water, we are content to lead this water into cisterns frequently placed over our water-closets, and in direct communication with our soil-pipes, before using it. It is still more extraordinary, when the sanitary authorities mildly venture to suggest objections to this exposure to contamination, to be asked for substantial evidence of positive injury. The essence of the worst sanitary arrangements is not the certainty of evil but the risk of it. The most disastrous nuisances derive their pernicious activity in individual instances from the realization of risk, the occurrence of the chance on the improbability of which we have hazarded all. Hitherto experts have not found in Glasgow that impurities of gaseous origin were chemically recognisable in water; but Dr de Chaumont gives an instance in which the effect of an overflow pipe from the cistern passing into the house drain was discovered by the analysis of the water of the cistern. We are thankful for the result, although at the same time ashamed that we should have cause to be thankful. Our thankfulness shows how far we are from the establishment of general principles, of which routine sanitary



work should be asked merely to point out particular illustrations.

The author maintains very forcibly that "the supply of water ought to be as free and copious as that of air, and it ought to be the business of the State, either directly or acting through the local authority, but no community ought to be at the mercy of any private company." He points out how very far in this, as in many other respects, we are behind the ancients. "Three-and-twenty centuries ago Plato laid down in his Republic, regulations for water-supply by the State; Herodotus mentions the care the authorities of Greek cities took about their aqueducts and fountains; Aristotle is careful to recommend the utmost care about water-supply, and the separation of the drinking water from that used for other purposes, when it was not all equally good; while the enormous aqueducts of ancient Rome and her colonies, the great underground cisterns of Byzantium, and even the later works at Malta and elsewhere, all testify to the statesmanlike care for this important matter in many parts of the world." Yet in spite of this argument from history; in spite of the fact that when cholera last visited this country it was deliberately "turned on" to East London in the shape of unfiltered water to make up a short supply; in spite of the monthly reports of Dr Frankland, describing not merely microscopic and chemical, but visible organic impurities in certain sections of the water supply, London is in the hands of no less than seven private water-companies, who dole out to her population only twenty-eight gallons per head daily. If we remember the large proportion of wealthy inhabitants and the quantity they consume in baths, we may guess how scanty must be the allowance left for the poor. Yet Rome brought into her midst and distributed 350 gallons per head daily of absolutely pure water!

A short and clear account of Pettenkofer's ground-water theory of enteric and other diseases, illustrated by diagrams, confirms our opinions of this theory. It has directed our attention vividly to the phenomena of the air and water present in the subsoil, and their relative movements; and to the position of a house as somewhat resembling that of a huge exhauster or cupping-glass, sucking up this ground air—facts doubtless related to health in many and important ways. Still we have always felt that the ground-water is like other physical phenomena which admit of graphic representation, and which, if so represented, would move relatively with the prevalence of enteric fever and other

filth-diseases, but which have only an indirect or collateral connection with them. The rainfall, for instance, would furnish a course very like that of the level of the ground-water in the Munich diagram. We have the strongest suspicion that the water-supply is the real direct agent in those cases where the level of the ground-water shows an apparently causal relation with *specific* disease. Unless the water is drunk we do not believe its movements in the soil will materially influence the rise and spread of specific disease, although they may have important influences on general health. In Berlin, for example, the movements of the ground-water have been elaborately shown to coincide with the prevalence of enteric fever, the former being at its lowest level, while the latter was at its highest, *but the people of Berlin drink the ground-water*. The sewage arrangements are miserable, and the soil and the wells are polluted. As the ground-water falls, or, what is the same thing, as the level of the water in the wells subsides, there is a gathering in, from the polluted soil, of the specifically poisoned water. We see no need, whatever, to multiply causes recklessly; and we believe if the people of Berlin fetch their water-supply from a distance, and keep their sewage out of the soil, the ground-water will rise and fall as of old, but enteric fever will part company from its movements.

That portion of Dr de Chaumont's book which treats of sewage is very good. Brevity is not the least of his virtues. "Modes of removal" is despatched in six pages, and yet really those pages give the gist of a question which the author wittily remarks reminds him of Milton's description of Chaos:

"For hot, cold, moist, and dry, four champions fierce  
Strive here for mastery."

In Lecture V., we have a very sketchy treatment of food and beverages, their adulteration, &c., with a quantity of matter about dietetics, potential energy of food, &c, which belongs more to Physiology than to State Medicine, and, at anyrate, ought, in a short course, to have given way to subjects more strictly hygienic. We hope Miss Jex Blake will derive some comfort from the author's statement, that "a female must be looked upon in certain ways as an *arrested male*."

The last lecture treats of prevention of disease, in which the Contagious Diseases Act swallows most of the space, of the propagation of disease, epidemics and statistics, which is treated clearly and learnedly. We are pleased to note

that carbolic acid, that dethroned disinfectant, is still allowed to occupy a place, which we have always held to be its proper place, though in the present reaction the tendency is to deny it any place at all. He says, "Suspension of the activity of morbid poisons may be effected either by extreme cold (which is, however, not practically applicable), or by the use of such substances as carbolic acid and other vegetable products. Although these agents do not destroy the poison, there is no doubt that they arrest its activity more or less efficaciously, and they may sometimes be applied where it is not convenient to use other means."

Although those "Lectures on State Medicine" are not, and indeed do not, except perhaps in the title, pretend to be, a systematic presentment of hygiene, such as would sufficiently furnish the library of a medical officer of health, or cram an aspirant for a degree in public health, they are scholarly and instructive. We recommend them for their freshness of thought and scientific precision.

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VII.—MILK IN HEALTH AND DISEASE. *By* A. HUTCHISON SMEE, M.R.C.S., F.C.S., &c., *London*. 1875.

THIS is "a book," perfect in all its parts, even to a "Dedication" and an "Appendix;" but the whole thing extends only to sixty-eight pages, of which the "Appendix" accounts for forty-six. Yet, with all the conceit of a literary Tom Thumb, it presents itself, or more correctly speaking, it is presented by its parent, as "An Investigation on Milk in Health and Disease." In the twenty-two pages the author manages to touch a multitude of questions, but determines none of them. His observations on the difference between the milk from cows fed upon sewaged and upon unsewaged grass, and upon oil-cake, based upon a few analyses, and without particulars, are not only trivial, but unnecessary. In a blue book, published by the Commission appointed to inquire into the best mode of distributing the sewage of towns, and applying it to beneficial and profitable uses, so far back as 1865, the influence of sewaged as compared with unsewaged grass, and other diets, in producing flesh, and on the quantity and chemical quality of the milk, was examined by careful experiment on scores of cattle. The details occupy over 200 pages of

tables. Mr Smee's petty "Investigation" was not, therefore, in the least degree required.

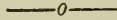
The only novelty in this "book" is the statement that "Milk was exposed in vessels to the action of sewer gases, to ascertain whether the milk would absorb these gases, and thus be altered in composition. The methods of analysis adopted by public analysts did not indicate any change in this milk.

*Milk exposed to untrapped drain*—Water 88, solids 12·1, caseine 3·5, fat 0·3, ash 0·8.

This milk, when distilled at a low temperature, not exceeding 120 degs. F., yielded a distillate which had an offensive smell and unpleasant taste. Tasting the distillate set up intense headache, vigorous rapid pulse, and was followed by severe diarrhœa." The author makes a similar statement with reference to "milk exposed to the vapour rising from animal matter undergoing putrid decomposition." Now, it is unnecessary to say how important those observations are, but here, and in all his statements of experiments, there is a conspicuous unscientific slovenliness which prevents us from accepting his results until we are informed of the whole details. Rather, the slovenliness consists in the withholding of essential details, which we fear arises from the want of a sense of the necessary component parts of a rigid experiment, which is like a tremor in the mercurial mirror when the astronomer looks for the reflected image of a star.

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## Public Health Department.



I.—FURTHER INFORMATION ON THE IMMEDIATE RESULTS OF THE OPERATIONS OF THE GLASGOW IMPROVEMENT TRUST, AS REGARDS THE INHABITANTS DISPLACED.

BEING PORTION OF THE OPENING ADDRESS OF THE SANITARY SECTION OF THE PHILOSOPHICAL SOCIETY OF GLASGOW.

By JAMES B. RUSSELL, M.D., *Medical Officer of Health, Glasgow, and Vice-President of the Section.*

GENTLEMEN,—It is due to myself to explain that I am here to-night, more at the urgent solicitation of the President of this Section, than in accordance with my own desire. Circumstances render it almost impossible for me to produce anything sufficiently new or matured to deserve attention; and I merely propose to lay before you some facts regarding the immediate results of the operations of the Improvement Trust on the inhabitants displaced by their operations at the May term of 1875, similar to those which I formerly gave you regarding their operations at the May term of 1874.\* The information contained in my previous paper was transmitted by the Glasgow authorities, along with other documents, to the Secretary of State for the Home Department, and was, with similar information furnished by the City of Edinburgh and the Burgh of Liverpool, printed and presented to Parliament, for their guidance in the discussion and enactment of the Artizans' Dwellings Bill. It is therefore important to check previous conclusions by further facts.

At the May term of 1874, there were only 351 families displaced; and of these, for various reasons, only 243, embracing a population of 990 persons, were available for the purposes of my inquiry. At the May term of 1875, no less than 818 families were displaced, of whom 655 are available, embracing a population of 2720 persons. Of the balance of 163 families or houses, the large majority—viz.,

\* See *Proceedings of Philosophical Society of Glasgow*, Vol. IX., p. 207.

145—are necessarily excluded, because we were unable to trace them to their new residences. People of that class are very suspicious, and I have no doubt, in many cases, intentionally obscured their retreat; while others had removed before the officers called. Of the others, eight lived in premises connected with shops, while six lived in a new property on the “Bell-o’-the-Brae,” and the remainder were common lodging-houses, these being circumstances which removed those holdings, in point of rental, &c., from the category to which the 655, retained for the purposes of this enquiry, almost all belonged. That this large residue, so purified of sources of error, really represents the class of house with which the Artizans’ Dwellings Act was intended to enable Corporations to deal, will be at once apparent from the fact that no less than 84 per cent. were ticketed either as houses of not more than three apartments, and under 2000 feet of cubic space, under the Glasgow Police Act, or as houses let in lodgings, under the Public Health Act; and that, therefore, 84 per cent. of the inhabitants lived under the strict surveillance which houses so ticketed entail on their inmates. Being, therefore, so strictly of the proper class of house and inhabitant, the much larger numbers dealt with on the present occasion (655 families as compared with 243) give my conclusions a much broader basis. I am happy to say they are, on the whole, quite the same as were derived from the narrower basis; and as such inquiries are extremely laborious and troublesome, this paper, in connection with the last, may safely be taken as placing beyond question the nature of the *immediate* results of the operations of the Improvement Trust upon the inhabitants displaced. As to the *ultimate* results upon the health of the community, time is a necessary condition of their development. In the Parliamentary paper to which reference has just been made, Dr Littlejohn says in reference to this wider and more complex question, “As Medical Officer of Health I would not trust to any statistics that were not based on an experience of at least ten years,”—an opinion in which I entirely concur. But if

I were asked whether we in Glasgow have gone about the renovation of our city in the way most likely to derive the maximum return of good results, I should distinctly say, No. One of the first principles in the development of any scheme of improvement, under any Act, local or general, should be to see that the building regulations are such as will give material expression to the accumulated lessons of the past. A thoroughly-devised Building Act is a necessary complement of an Improvement Act; and to work out an Improvement Act, conceived in the light of the most advanced sanitary intelligence, while the reconstruction stimulated thereby is regulated by a Building Act, it may be, half a century behind in its conceptions of the demands of public health, is to do only half a good work, and lose a golden opportunity, which will soon be thought of with regret.

The area of the operations of last May term was chiefly the Gorbals and the High Street. Only a few houses were demolished in the Eastern district. There are some differences in the facts regarding those areas singly, especially in the quality of the property, which was decidedly worse in the Gorbals than in the High Street area. In point of construction and design, it may be said that many of these old houses fronting the High Street, if simply restored to their former mode of occupancy, as single instead of multiple holdings, would put the houses of a similar class erected now-a-days to shame. But the tenements in Gorbals were much less substantial to begin with, and much more wasted and worthless. However, we shall throw all the facts regarding these demolitions together, and consider them in the aggregate, following the same order as in my former paper.

1. *Size of House.*—*Before* the operations, of the 655 houses, the families occupying which were subsequently traced to their new abodes, 360 were houses of 1 apartment; 234 of 2 apartments; 39 of 3 apartments; 21 of 4 apartments; and 1 of 5 apartments. *After* the operations, those 655 families were found to be occupying 273 houses of 1 apartment; 267 of 2 apartments; 48 of 3 apartments; 11 of 4 apartments;

and 1 of 6 apartments; leaving 55, of whom 25 had gone into lodgings; 9 had removed to various parts of the country; and 16 had emigrated—gone to Ireland, or otherwise disposed themselves forth of the city. Reducing these figures to percentages, so as to facilitate comparison, we find *before* the operations of the Improvement Trust, 55 per cent. of those families living in houses of 1 apartment, and *after* 42 per cent.; *before*, 36 per cent. living in houses of 2 apartments, and *after*, 41 per cent.; *before*, 6 per cent. living in houses of 3 apartments, and *after*, 7 per cent.; *before*, 3 per cent. living in houses larger than 3 apartments, *after*, 2 per cent.; leaving a balance of 8 per cent. who betook themselves to lodgings, to the suburbs, to the country, &c., &c. By taking the families as we originally find them in each class of house apart, and tracing them thence to their new abodes, and noting the condition as to size, we get a more minute and interesting aspect of the same facts. Thus, of the 360 families in houses of 1 apartment, we find 220 still in houses of 1 apartment, while 99 are in larger houses, 23 in lodgings, 8 in the country, 1 in the suburbs, and 9 otherwise disposed of—emigrated, gone to Ireland, in the poorhouse, and in one or two cases in prison. So of the 234 families in houses of 2 apartments, we find 151 still in houses of 2 apartments; while 24 occupy larger houses, and 51 have taken smaller; 2 having gone into lodgings, 1 removed to the suburbs, and 5 otherwise disposed of themselves. Of the 39 families in houses of 3 apartments, we find 11 still in houses of 3 apartments; 8 in larger houses, 15 in smaller, 1 in the country, 3 in the suburbs, and 1 in premises connected with a shop. Of the remaining 22 families in houses larger than 3 apartments we find 3 still in houses of equal size, 1 in a larger house, 17 in a smaller, and 1 in premises connected with a shop. It will be observed that the occupants of 25 houses ceased to become householders and went into lodgings. This is about 4 per cent. of the families displaced, and embraces 71 individuals; giving a proportion of less than 3 per house, and indicating that they were for the most part old persons, widows, or persons without families. Of the 25 families



who went into lodgings, 21 belong to the Gorbals area, being  $6\frac{1}{2}$  per cent. of the families displaced, a very clear indication of the propriety of the erection of a model lodging-house in that district, which I believe the Improvement Trust are about to do. Indeed, while the Trust has very properly refrained from entering upon general building enterprises, I think they might very wisely extend their model lodging-house accommodation. They pay well, and they meet a clamant necessity. At the census of 1871, it was found that 23 per cent. of all the families in Glasgow kept lodgers, but it is only when we discover among what class of householders the practice most prevails, that the important relation of this fact to health and morality will appear. Of the families who lived in houses of 1 apartment, 14 per cent. kept lodgers; of those who lived in houses of 2 apartments, 27 per cent. kept lodgers; of those who lived in houses of 3 apartments, 32 per cent. kept lodgers. Unfortunately while the reception of lodgers brings the house within the scheduling powers of the Public Health Act, the authorities have no power to forbid their reception, so long as no overcrowding takes place. So it is even with common lodging-houses. The authorities have a very limited power over their structure and plan, and I am frequently required to determine the number of beds to be licensed for such premises, when I should prefer to say that these premises are totally unsuited for such a purpose. The common lodging-house is the hotel of the great floating body of persons in search of employment, and the boarding-house of the labouring man and woman without family ties. Such persons are an evil in the private household, and to make special provision of a proper kind in suitable buildings it must be done on a large scale, and requires capital. Many of our large lodging-houses are unobjectionable in their construction and management, and nothing is more agreeable than to find a few flats of made-down, and therefore dismal, unhealthy houses, the majority let in lodgings, falling into the hands of an enterprising man, cleared of their artificial partitions and filled with rows of clean beds. But still, as a

rule, common lodging-houses are not structurally adapted for the purpose, and I should like to see provided, either by the Improvement Trust or by private enterprise, preferably by the former, many commodious houses, not in obscure corners, but on prominent sites, near such populous centres as the Cross, Bridgeton Cross, Gorbals, Anderston, Cowcaddens, where the people have been in the habit of congregating and of obtaining lodgings. If this were done, and indeed in any case, the authorities ought to have the power not merely of regulating the use of premises as lodging-houses, but of deciding whether such premises are fit to be so used. In this way many of the smaller class of common lodging-houses which are totally unfit for the purpose, in the hands of people of no means, and often of no character, harbourages of thieves and prostitutes, would be abolished, and a large class of the community would be brought under discipline and live in circumstances healthier for themselves, and therefore less dangerous to the public health. This is particularly illustrated by the experience of model and even common lodging-houses as to infectious disease. I do not remember ever hearing of a case in the Trust establishments; and in a well regulated lodging-house, if a case does occur, the disease never spreads, and yet the inmates are, in the condition which to them unfortunately, however unnatural, is a state of nature, "food for fever." But as I have said, common lodging-houses are not all what they ought to be, and may become depôts of fever, and distribute it for weeks, unless absolutely shut up and the most extreme measures adopted which the law permits.

2. *Rental of House.*—The average monthly rental of the houses demolished in the Gorbals was much lower than in the Central district, a remark which was made also in my former paper. It was for a 1-apartment house, in Gorbals, 6s 9d per month; in the Central, 7s 1½d; for a 2-apartment house, in Gorbals, 9s 10¼d; in the Central district, 10s 6¼d. The families displaced in Gorbals also got houses at a lower rental than those displaced in the Central, the addition being almost proportional on the original rent. It is better,

however, as in considering the size of house, to throw all the districts together, when we obtain the following result:—Those families who in the *old* buildings occupied a house of 1 apartment, at an average monthly rental of 6s 10½d, paid in the *new*, for the same size of a house, 8s 0¼d, an increase of 17 per cent. on their former rental. Those families who, in the *old* buildings, occupied a house of 2 apartments, at an average monthly rental of 10s 1¾d, paid in the *new*, for the same size of house, 12s 3½d, an increase of 21 per cent. on their former rental. Those families who, in the *old* buildings, occupied a house of 3 apartments, at an average monthly rental of 16s 2¼d, paid in the *new*, for the same size of house, 18s 10¼d, an increase of 16½ per cent. on their former rental. Similarly, a house of 4 apartments, in the *old* buildings, cost 19s 9½d per month, and in the *new*, 30s 7½d, an increase which necessitates the repetition of the remark made last year, that whereas a house of 4 apartments in the old buildings was a sham, in the new it is a reality, and, therefore, must be paid for, as substantial goods must always be, with a substantial price. Indeed, the remark may be extended, though with less emphasis, to the whole of this increased outlay for rental, which was probably that aspect of the enforced change which would bulk largest in the minds of those persons. In the main, there can be no doubt they had a better article for the money, better accommodation, and more conveniences, which cannot be estimated statistically.

3. *Number of Inmates in House.*—One of the advantages which may underlie a change from one house to another of the same size, but at an increased rent, is additional house-room or space. Although I have the cubic contents of most of the old houses, I have not of the new, but the proportion of the inmates to the house is, if not as good commercially, better sanitarily, as an indication of the circumstances of the inmates as to accommodation. The *old* houses of 1 apartment had an average of 3·4 inmates, the *new* of 3·3 inmates; the *old* houses of 2 apartments had an average of 4·7 inmates, the *new* of 4·6 inmates; the *old*

houses of 3 apartments had an average of 6 inmates, the *new* of 6·2 inmates; the *old* houses of 4 apartments had an average of 6·3 inmates, the *new* of 4 inmates. On the whole, therefore, in the houses of smaller size at anyrate, the tendency has been to re-assort the families displaced into houses proportionally larger than those they were compelled to leave. The broadest expression of this fact is obtained by taking the average, not per house, but per apartment in all the houses, when we find that in the *old* houses there were 1034 apartments to 2720 inmates, while in the *new* houses there were 1001 apartments to 2509 inmates, giving 2·5 inhabitants for each apartment in place of 2·6. All these comparisons go on the presumption that the same inhabitants will go into the new house as left the old, and that no attempt will be made to turn increased accommodation to account by taking in lodgers and over-crowding. Unfortunately the tendency is too certainly in the opposite direction, and having left houses of which 84 per cent. were ticketed, and measures taken to keep down this tendency, if these people find themselves in their new residences suddenly relieved from this restraint, their last condition will soon be worse than their first. I may say, however, that the Committee of Health have given me full powers to require ticketing of houses, wherever the habits of the people or the prevalence of disease indicate the necessity and the law will permit it to be done.

4. *Method of Excrement Disposal.*—Another item of advantage which may be covered by change, even with increased rental, is greater convenience and less nuisance in the method of excrement disposal. This also may be indicated in a rough way statistically. For this part of my inquiry I have the facts as to this branch of social convenience concerning 556 families, embracing 2334 souls. Before the demolitions at last May term, only 7 per cent. of these families used water-closets; whereas 14 per cent. do so now. To the large remainder who still use public privies and ash-pits, there is this undoubted improvement that, on the whole, these conveniences are better constructed, and espe-

cially better situated, so as to be less a source of nuisance and injury than in the confined spaces available in the old parts of the town. Of the water-closets themselves—in the *old* houses 36 were *in* the houses, and only 4 on the stair; whereas in the *new* houses—43 are *in* the houses, and 35 on the stair, where they ought always to be in houses of this class. The result of my former inquiry was to show that  $13\frac{1}{2}$  per cent. of the families displaced were, by the change, provided with water-closets, in place of only  $4\frac{1}{2}$  per cent. So that we have, as an undoubted and immediate effect of the reconstruction of the city, an increased pollution of the river considerably beyond what the natural increase of our population would produce. I apprehend also that from this progressive withdrawal of the excrement of the population from the possibility of utilisation, the total refuse of the city—with which our Cleansing Department has to deal—will become less and less valuable, and therefore more difficult to get rid of. At present our manurial refuse is employed as a means of disposing of our non-manurial refuse. Under cover of the former, we strew the fields, for miles around, with our rubbish, the farmer being rewarded for the trouble of gathering up our broken bottles, earthenware, boots, and other miscellaneous contents of our ash-pits, from his land, by the intermixed manurial elements which the rain washes into it from these foreign bodies. This will become less and less possible as the proportion of our excretions lost in the sewers increases; and we shall be compelled to study the economics of our ash-pits in a scientific way, which we have not yet done.

5. *Distance from the Centre of the City.*—There is no doubt the farther from the heart of the city we have our homes the better. We may have to go down into the city to earn our bread, but the place where we sleep and where we rear our families should be as near the outer verge as possible. We shall find that in this respect also an immediate result for good has been effected by the Improvement Trust, and one also which admits of partial statistical expression. I have again taken the Cross as the centre of the city, and

have determined the distance therefrom of 626 families before and after last May term, the addresses of the remaining 29 not being sufficiently definite to admit of the distance being ascertained. *Before* last May term, 165 of these families lived within a quarter of a mile of the Cross, 294 within half a mile, and 167 within three-quarters of a mile; *after* last May term, those families found themselves distributed thus over the city:— 102 within a quarter of a mile of the Cross, 190 within half a mile, 198 within three-quarters of a mile, 49 within one mile, and 32 within one and a half miles. Of the remaining 55, there were 5 who lived in the suburbs, 25 in lodgings, and 25 elsewhere remote from the city. If we reduce these figures to percentages, the change will be more evident. *Before* the term, 26 per cent. of those families lived within a quarter of a mile of the Cross, *after* it only 16 per cent.; *before* the term 47 per cent. lived within half a mile, *after* it only 30 per cent.; *before* the term, 27 per cent. lived within three-quarters of a mile, *after* it 32 per cent.; and this is the crest of the wave of dispersion, which gradually falls to 8 per cent. within one mile of the Cross, 5 per cent. within one and a half miles, and scarcely 1 per cent. flowed over into the suburbs. Speaking still more generally, those operations found all the families affected living within three-quarters of a mile of the Cross, and left 14 per cent. at various stages beyond that limit; within that limit also dispersing them outwards. My former inquiry showed that while all the families then displaced lived within three-quarters of a mile of the Cross, in their original dwellings, 19 per cent. were spread beyond that limit, only 2 per cent. actually overflowing the municipal boundaries. We are, therefore, able to form a very clear idea of the nature of the internal movements which such operations produce in our population. The effect resembles, in external form, when we confine our attention solely to the families directly involved, a wave gathering up to a crest, and then breaking and flowing out in a diminishing stream; but if we look deeper, and consider all the units of the population in whose midst this disturbance is set up, we shall find a process of

displacement and substitution, whose influence is only expended when the very outer confines are reached, not merely of what is artificially termed Glasgow, but of that great community of which Glasgow is the vital centre. The class of people of whom I have been speaking cling tenaciously to their old haunts. It is wonderful how they manage to seize the nearest available corner. It is this desire, and the competition which it begets for houses of small size in the heart of the city, which stimulates the process of making down houses, on which I animadverted so strongly in my former paper. Those people go into cast-off houses just as they wear cast-off clothes, and the trade in the former commodity is as brisk and profitable in the centre of the city, or rather in the centres of the city, as the trade in the latter. A landlord finds he can double his rental by making down a house of 3, 5, 7 apartments into as many, or almost as many, houses as there are apartments, and I can best show you with what result by the most recent instance which has come under my notice in close proximity to the area of the Improvement Trust's operations in Gorbals. This is a plan of two 6-apartment houses, comfortable, healthy dwellings, as originally designed and long occupied, but now sub-divided and let as four single-apartment houses and four double. The lobby of the private house is now the dark tunnel through which those people make their way to the stair, the common *cul-de-sac* into which the foul air from all those houses passes and where it stagnates. This change has been carried out in three flats, so that at once in place of 6 houses on this stair we have 24. I am anxious to throw another stone at this system. We are about to get those lobbies extended to the outer wall, so as to give a through draft, and shall most likely require to effect the change by a process before the Sheriff. But why should this making down be allowed without reference to the Dean of Guild or other Court governing the erection of new buildings? No reason whatever can be given for the continuance of the practice.

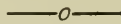
You will now understand how it is that although only 1

per cent. or 2 per cent. of the families actually disturbed reaches the outskirts and suburbs, still the effect on the units of our population is much wider, and its nature and tendency is to send our artizans and skilled workmen and respectable middle class outwards year by year, and increasingly, over our artificial boundaries. The space which has been cleared of those masses of unskilled work people will never be occupied by the same class again. A large area is consigned to railway purposes. Where buildings are being erected, they are either warehouses or shops, with dwelling-houses above, suitable for those employed about those places of business and trade. The occupation of those houses will cause a slight return current from the outskirts which will facilitate the passage outward of the lower class, and dilute the death-rate of the inner districts. This is a source of fallacy to which we shall soon be exposed. It may even come about that the death-rate in the High Street and closes, and in Bridgegate and Wynds, or Gorbals, will be lower than in districts which at present are much healthier, but we must distinguish between the district and the people, for whom we shall have to look elsewhere. In short, our general, and not our local, death-rate will be the only safe guide to the aggregate result of all those complicated internal movements.

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## Exchange Journals.



By Dr JOSEPH COATS.

REICHERT AND DU BOIS-REYMOND'S ARCHIV.

PARTS I. II. and III. 1875.

CONTENTS.—I. On pronation and supination of the forearm, by H. Welcker, Halle (Plate I., figs. 1-9). II. The tractus ileo-tibialis of the fascia lata, by the same (Plate I., figs. 10 and 11). III. On partial excitation of nerves, by H. Munk. IV. Contributions to physiology, by Dr Dönhoff. V. On the processus tuberositatis lateralis of the fifth metatarsal bone, and its occurrence as an epiphysis, by Dr W. Gruber (Plate II. A.). VI. On the processus tuberositatis multanguli majoris, and its occurrence as an epiphysis, by the same (Plate II. B.). VII. The temporal lines of the human skull, by Dr H. von Ihering (Plate III.). VIII. The analogies of Dulong and Petit's law among animals. Studies on animal heat, by Dr A. Adamkiewisz (Plate IV.). IX. On the action of curare, by Dr J. Steiner, Halle. X. On the direct transition of arteries to veins, by Fanny Berlinerblau (Plate V. A.). XI. On the physiological action of the capillary electric current, by Dr E. Tiegel, Strassburg. XII. An addendum on the bipartite zigoma, by Dr W. Gruber (Plate V. B., fig. 1). XIII. A musculus piso-hamatus in man, by the same (Plate V. B., fig. 2). XIV. On a case of musculus extensor communis digitorum, with five tendons to all the fingers, and one of an extensor digitorum longus pedis with five tendons to all the toes, by the same (Plate V. B., fig. 3). XV. A case of the flexor pollicis longus in man, as tensor bursæ mucosæ tendinum mm. flexorum, or as head of the flexor digitorum profundus, by the same. XVI. On the allantois in man, by W. Krause (Plate VI.). XVII. On red and pale striated muscle, by Dr E. Meyer, Celle. XVIII. The conduction of heat by muscle, by Dr A. Adamkiewisz. XIX. The sesamoid bone of the human hand, by Dr C. Aeby, Bern. XX. Contributions on the so-called anthropomorphous apes, by Robert Hartmann (Plate VII. and VIII.). XXI. A new method of using Knop's reagent for estimating the nitrogen in the urine, by F. Plehn, Berlin. XXII. Anatomy of the pyrrhocoris apterus, L., by Dr P.

Mayer, Jena (Plate IX. and X.). XXIII. Contribution on double monsters, by Dr L. Dittmer, Berlin.

**III. Partial Excitation of Nerves** (*Munk*).—The matter of most importance in this paper is the observation, which however is not a new one to the author, that when the electrodes of a constant current battery are applied to two points in a nerve, all the fibres are not affected equally. Differences are even observed according to the strength of the current, as well as the position of the nerve in relation to the electrodes. When a nerve contains fibres having different functions, then the one set may be irritated by one mode of application, and another by a different. It is suggested that this may explain some apparently opposite views as to the function of certain nerves, especially the vagus.

**IX. The Action of Curare on Fishes** (*Steiner*).—It has been already known that curare acts less vigorously on fishes than higher animals, and here there is a variety of experiments with a view to a more accurate estimate of the differences. In fishes curare first paralyzes the centres for voluntary motion, then the respiratory centres, and lastly the motor nerve stems. The paralysis of the motor nerves occurs much later in fishes than in amphibia, birds and mammals, and the delay in the paralysis increases with the size of the fish in spite of corresponding increase in the dose. In the electric roach the electric nerves are later in being paralyzed than the motor. In crabs the paralysis is even later than in fish, and in snails, starfish, and holothuria there is only paralysis of voluntary motion. The poison does not seem to act on the medusæ.

**X. Direct Transition from Arteries to Veins** (*Berlinerblau*).—This paper records a number of observations to determine whether, as some have asserted, there be a direct transition from arteries to veins, without the intermediation of capillaries. The author has found such a transition in the ear of the rabbit, and a plate shows the mode of connection. But by the most careful injections she could not find any evidence of it in the legs of the rabbit, or in the arm and leg of man. She concludes that there may be in the parenchyma of some organs an occasional occurrence of this sort, but there is no regular and systematic communication such as would be of physiological significance.

**XVII. Red and Pale Voluntary Muscle** (*Meyer*).—The striated muscle of the animals low in the scale is generally pale, while it is red in the higher. Again the same animal may sometimes present both varieties. Thus in the domestic rabbit the semitendinosus is red, and most of the others pale, and it has been attempted to be shown that this muscle, and red muscles in general, are different structurally and physiologically from the pale. The author finds that the semitendinosus has a slightly different structure from the adductor magnus, a pale muscle, and that also it reacts differently to irritation. But he finds that other red muscles of the rabbit agree in their structure and reaction with the adductor, and not with the semitendinosus. These differences, therefore, have nothing to do with the red colour of this muscle, and must have some other significance. The author believes that the colour of the red muscles depends on their greater activity. Some muscles are red in wild animals, but pale in corresponding domestic animals, this being due to the fact that in the latter their activity is limited. In regard to the semitendinosus of the rabbit, it is pointed out that in the habitual attitude of that animal this muscle is almost continuously contracted, hence its redness. Then also, being continually contracted, it has apparently lost the faculty of passing rapidly from the state of rest to that of activity, this being the physiological speciality referred to above.

**XXIII. Theory of the Formation of Double Monsters** (*Dittmer*).—There are two chief theories of the formation of double monsters, according to one of which there have been originally two ova (in one Graafian vesicle or two) which have at an early period stuck together, and according to the other there has been one ovum, by whose division the double monster has been formed. The former theory the author views as exploded, and he here gives his own version of the latter. His opinion is that the double monster is an instance of bilateral symmetry carried too far. In the primitive germ of the normal embryo a longitudinal groove is formed, which afterwards represents the middle line, the two lateral parts developing symmetrically. But if this groove is too deep at one or both ends, the two halves will be there separated. The separated extremities have the power of producing the wanting lateral half of each. The separation of the two halves may occur at one extremity or at both, and it may extend to any depth. According to these

differences we should have the various forms of double monster from the Siamese twins to cases of a small supernumerary leg. There may even be a further stage of this process. One of the separated halves may present a similar exaggeration of bilateral symmetry, it separating into two halves like the original germ. Thus may be explained monsters with three heads or three tails.

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VIRCHOW'S ARCHIV.

VOL. LXIV., PART II. JULY, 1875.

CONTENTS.—VIII. A rare form of tumour of the mesentery (chylangioma cavernosum), by Dr A. Weichselbaum, Vienna (Plate V.). IX. Anastomosis of nerve cells in the spinal cord, by Prof. A. Willigk, Olmütz (Plate VI., fig. 1-4). X. On certain affections of the cord (Tetany and *Lepra anæsthetica*), by Prof. T. Langhans, Bern (Plate VII.). XI. On absorption by the human diaphragm under various circumstances (from Recklinghausen's Pathological Institute at Strassburg), by A. Rajewsky (Plate VIII.). XII. On the cement substance of epithelium, by Prof. J. Arnold, Heidelberg (Plates IX. and X.). XIII. On transfusion, an answer to Prof. P. L. Panum's paper, by Dr O. Hasse, Nordhausen. XIV. Smaller communications—1. A case of infusoria in typhoid stools, by Dr F. Marchand, Berlin (Plate VI., fig 5). 2. A remarkable case of non-simultaneous development of simultaneously inoculated cowpox, by Dr Wiehen. 3. Third meeting of the German Association for Public Health in Munich in September, 1875.

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VIII. **Cavernous Lymphatic Tumour** (*Weichselbaum*).

—This was a tumour of the same structure as the more usual cavernous tumour containing blood, but instead of blood this tumour contained lymph. The origin and development are discussed.

IX. **Anastomosis of Ganglion Cells in the Cord** (*Willigk*).—Anastomosis of the processes of ganglion cells has been very rarely observed, and its existence in the normal state has been disputed. This was a case of softening of the cord from embolism, and the author believes that the softness and ready destructibility of the tissue rendered these anastomoses more readily seen. He is of opinion that even in the normal state they exist, but it is only under favourable circumstances that they can be detected.

**X. Tetany and Anæsthetic Leprosy** (*Langhans*).—Cases of tetany very seldom come to *post-mortem* examination, and the conditions observed here are therefore of great importance. There was a thickening of the external coat of the small arteries and veins of certain parts of the cord (a periarteritis and periphlebitis). This existed in the anterior white commissure and the anterior cornua of the grey matter, and was present most in the cervical enlargement, and next to that in the lumbar swelling. In a case of anæsthetic leprosy the author found what he believes to be an inflammation of the cord with complete softening of its substance resulting in the formation of gaps or cavities. The parts affected were the grey commissure, Clarke's columns, and the posterior cornua, the disease being most extensive in the cervical and upper dorsal regions. The peripheral lesions, both of nerves and other parts, were greatest in the upper extremities, and are considered secondary to the affection of the cord.

**XI. The Lymphatics of the Diaphragm and Absorption by them** (*Rajewsky*).—This is a most interesting paper, and the results obtained of some significance. The object had in view in these experiments, which were done under Recklinghausen at Strassburg, was to determine the power which the diaphragm has of absorbing fluids placed on its surface, and the differences in this respect between normal and pathological states. The method pursued was this, the human diaphragm was carefully removed, and tied loosely over a funnel, with its abdominal surface next the inside of the funnel; or the diaphragm was simply laid on a plate; in either case precautions being taken against drying. The fluid to be injected was then poured on the abdominal surface, and left there for from 3 to 24 hours. For this purpose the author used milk diluted with water (the minute oil globules could be recognised under the microscope) or Indian ink rubbed down in a solution of common salt 75 per cent. Where the injection was very successful, the fluid penetrated through the diaphragm, and a fine network of injected lymphatics could be made out on the thoracic surface. In fact the human diaphragm has the power of attracting into its serous channels and lymphatic vessels, fluid and particles, just as Recklinghausen has shown the diaphragm of the rabbit to have. But the diaphragm in cases of inflammation of the peritoneum has a much greater power of thus sucking up fluids from its surface than the normal diaphragm. Preparations of this kind made according to the method sketched above show the most

beautiful injection of the serous spaces and lymphatic vessels, and prove that these serous spaces are not simply accidental gaps in the tissues, but really canals in the loose connective tissue. This exceptionally good injection in cases of inflammation seems to be due to the removal of the endothelium by the inflammation. This natural removal of the endothelium, or the same produced artificially, lays open fresh lines for the passage of fluid; that is to say, there are many serous spaces only separated from the surface of the diaphragm by the endothelium; when the latter is removed these are laid open. The subperitoneal fat was injected by a method similar to the above, and the lymphatic vessels and spaces in the adipose tissue were found to be so abundant that the fat became quite black and opaque from the injection material (Indian ink) filling these spaces. It is of some consequence to observe that though the lymphatics could thus readily be injected from the surface, yet when an attempt was made to inject them from a main stem, failure resulted. Cases were chosen, where the lymphatics were distended, so that a canula could be introduced, but in no case did the injection reach the serous spaces. The explanation seems to be that the pressure in the lymphatic vessels closes the communications with the serous spaces. This may be an important provision for carrying on the circulation, free passage being afforded forwards, but not back.

XII. We shall take up this paper along with one on a similar subject in the next number of the Archiv.

XIII. On Transfusion (*Hasse*).—This is a long and elaborate paper in answer to that of Panum abstracted in this *Journal* (Oct. 1875, p. 542). Panum asserts that if the blood of an animal of a different species be used for transfusion, it acts deleteriously. The present author states that lamb's blood has no such effect, whatever may be the case with the blood of other animals.

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PART III. AUGUST, 1875.

CONTENTS.—XV. On the percentage of water in the central nervous system of man, with some experiments on the effect of the constant current on the same, by Dr M. Bernhardt, Berlin. XVI. The more recent documentary evidence on the first outbreak of syphilis in the 15th century, by Dr C. Quist, Helsingfors. XVII. On concretions of oxa-

lates, by Dr M. Seligsohn, Berlin. XVIII. The pathological anatomy of the central nervous system. 1. On granular degeneration. 2. On varicose hypertrophy of the axis-cylinders, by Dr R. Arndt, Greifswald. XIX. On diabetes, by Dr Pawlinoff, Moscow. XX. On the cement substance of epithelium, by Dr R. Thoma, Heidelberg (Plates XI., XII.). XXI. Smaller communications. 1. A note in correction, by Prof. A. Böttcher, Dorpat.

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**XVII. Mode of Occurrence of Oxalate of Lime Calculi** (*Seligsohn*).—It appears from the experiments of certain observers that uric acid may be decomposed into oxalic acid and urea, and it is probable that under certain circumstances this change occurs in the living body, the process being due to an imperfect oxidation and transformation of the uric acid. The special circumstances under which this occurs seem to be chiefly connected with affections of the central organs of the nervous system. But the existence of oxalates in the urine is not sufficient to cause the formation of calculi. In the genesis of calculi two stages can generally be distinguished; in the first place the primitive nucleus has a history, and this is often special, and in the second place there is the history of the secondary incrustation. The nucleus of stones is often different from the incrustation. In the case recorded here there were two calculi, each with a nucleus of uric acid and a cortex composed chiefly of oxalates, but with a little phosphate of lime. The history of the case showed that the calculi had come from the kidney, being impacted in the ureter and urethra successively. The patient was a child two years of age. Now, as to the origin of the nucleus, Virchow has pointed out that from the end of the second day of life for three weeks, crystals of uric acid exist in the urinary tubules of most children in considerable numbers. They are gradually washed out by the urine, but some of them may remain in the pelvis of the kidney, and form the nuclei of calculi. In the present case this has probably been the origin of the nucleus, and the oxalates were deposited on it. It is stated that most oxalate calculi have a nucleus of uric acid.

**XVIII. The Central Nervous System** (*Arndt*).—The conditions considered in this paper are granular degeneration of the grey substance of the spinal cord and varicose hypertrophy of the axis-cylinders.

**XX. The Cement Substance of Epithelium** (*Arnold*)

and Thoma).—This paper and No. XII. in the preceding part, treat of the same subject, but from different sides. Both sets of observations have been made in Heidelberg, and Arnold took up the anatomical part, and Thoma the physiological. Arnold finds that on the upper and under surface of the frog's tongue, there is a single layer of epithelium, which is ciliated. Between these cells there is a somewhat glutinous substance which surrounds them at the sides, where they are in contact with each other, but which also extends to their base, where this substance is related to the serous spaces and channels of the mucous membrane. When a fine injection is thrown into the blood-vessels of the tongue, it passes into the serous spaces (as Arnold has shown in former papers; see this *Journal* of July, 1875, p. 390), and thence into this cement substance, which lies between the epithelial cells. The injection material thus forms a network around the epithelium. But this condition of matters not only exists in situations where there is one layer of epithelium, but also where it is stratified. In the palate of the frog and the web of its foot, injection showed similar networks, but of course they were more intricate than in situations with only one layer. So also, in the glands of the tongue, there is, in injected specimens, a network in communication with the blood-vessels, which lies between the membrana propria and the epithelium, and sends processes between the individual epithelial cells towards the lumen of the glands. It thus appears that the so-called cement substance is a soft material, whose function is not alone to glue the cells together, but also forms channels by which the nutritious fluid is supplied to the epithelium.

Thoma at the outset of his paper refers to the fact that Carter, in 1870, had succeeded in sending an injection into a fine network between the epithelial cells; while Arnold, in the paper just considered, has fully established the conclusion that the cement substance stands related to the serous channels, and by means of them to the blood-vessels. In Thoma's observations a colouring matter, the indigo-sulphate of soda, was transfused into the blood-vessels of the living frog. This blue colour soon showed itself in the blood and connective tissues, but was generally two hours before it became visible at the margin of the tongue, but in the course of time the colouring matter, introduced into the blood in solution, appears in the cement substance in the form of fine solid granules of a dark blue colour. A network is thus formed, which surrounds the lateral aspects of the epithelial cells. This colouration was found in the epithelium of the skin, of



several mucous membranes and glands, so that it seems proved, on the basis of physiological as well as anatomical observation, that the so-called cement substance affords passage to nutritious fluid from the blood-vessels, and is not simply a uniting medium. Both papers are illustrated by excellent plates.

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PART IV. SEPTEMBER, 1875.

CONTENTS.—XXII. On the development of the human spinal cord and its individual elements, by Dr H. Eichhorst, Berlin (Plates XIII. and XIV.). XXIII. The function of the Eustachian tube and the palatine arches, by Prof. A. Lucae, Berlin (Plate XV.). XXIV. On digestion and absorption in the large intestine of man. Investigation in Kühne's Physiological Institute at Heidelberg, by Dr M. Marckwald (Plates XVI. and XVII.). XXV. Contribution on the dignathus, by S. von Rosciszensky, Warsaw (Plates XVIII. and XIX.). XXVI. The pathological anatomy of Lyssa, by Dr M. Benedikt, Vienna (Plate XX.). XXVII. Smaller communications. 1. Johann Philip Burggrave, 1700-1775. A character-picture from the history of medicine, by Dr W. Stricker, Frankfort. 2. Report on the occurrence of trichina in the swine killed in Braunschweig, from Easter 1873, to Easter 1874, by Dr C. W. F. Uhde.

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XXII. The Development of the Spinal Cord (*Eichhorst*).—This is a long and interesting paper. The author bases his statements on the observation of thirty normal and well-developed foetuses, the youngest of which was two months and twenty days old, and the rest represented the various succeeding months, not less than three occurring in each. The cord is at first almost entirely composed of what is afterwards the grey substance, but at the beginning of the third month there are as yet none of the essential elements present, namely, the ganglion cells. We have only a collection of round cells, or nuclei, of about the size of white blood corpuscles, with a minimum of delicate intercellular substance. These are the formative elements, and are afterwards concerned in the production of the nervous elements, blood-vessels, and connective tissue. The gradual transformation of some of these into ganglion cells is traced, this process beginning towards the end of the third month, and appearing first in the anterior cornu and the anterior extremity of this. They begin to form in the posterior cornu in the seventh month,

while the last to form are those at either side of the central canal (Clarke's column), which only appear in the second half of the eighth month. This process of development of the ganglion cells seems entirely by transformation of the formative cells, chiefly the enlargement of them and the formation of processes, no instance of division of ganglion cells having been observed. The order in which the ganglion cells appear is interesting. If a hypothesis originated by Garlach be correct, then the first to be developed are the motor ganglion cells (anterior cornu), then those having a reflex function (posterior cornu), and lastly, the automatic (Clarke's column). Up to birth, the cells remain free from pigment.

The white substance is later of being formed than the grey, appearing first on each side of the longitudinal fissures, before and behind, so that at the earlier periods the grey substance is bare at the sides. This substance afterwards extends round and forms the lateral columns, which cover in the grey substance. At first, we have here, also, only cells in a fine intercellular substance. The nerve fibres are formed only by the elongation of the cells, the nuclei being pushed aside, and afterwards lying by the side of the fibres. The medullary sheath is a subsequent formation, and first appears in the fourth month, in those parts of the cord situated on each side of the longitudinal fissures, its formation extends slowly in the lateral columns from before and backwards, not being completed in the posterior parts even at the end of the tenth month. The medullary sheath is formed by a fatty metamorphosis of the interfibrillary tissue; at first there are isolated fat drops, which subsequently flow into a continuous mantle.

The connective substance has, at least partially, a different origin in the grey and white substance. In the former the remaining formative cells, which have not been transformed into ganglion cells or vessels, are the neuroglia cells. In the white substance the elongated nuclei of the cells, which formed the nerve fibres, remain, and some of them doubtless appear as neuroglia cells, but the characteristic round cells of the white substance have a different origin. These do not appear till the fourth month, and are believed, by the author, to be white blood-corpuscles, which have wandered into the cord. These cells, in first coming into the white substance, undergo fatty metamorphosis, abundant granular cells being often met with. They soon part with their fat, however, which goes to form the medullary sheath. This fatty degeneration only affects the individual cells for a few days, and it may be that it is related to the change in circumstances of the

cells, which recover when they have become accustomed to their new habitation.

The central canal of the cord is at first very wide, and seems to get smaller, as lymph spaces are developed in the cord. It probably carries off the lymphatic fluid in the earlier periods. It is to be noted that this author denies the existence of the perivascular spaces of Hiss, while he confirms the existence of the spaces of Virchow and Robin. Lastly, the cord in the earlier periods fills the whole canal, sacral as well as vertebral. It begins to retire in the fourth month, as the elongation of the vertebral column predominates over the growth of the cord. At birth, the inferior termination is at the third lumbar vertebra. A table is given of the sizes at different periods.

**XXIII. The Eustachian Tube during Swallowing, &c. (Lucas).**—It has generally been believed that under ordinary circumstances the Eustachian tube is closed, but during swallowing is temporarily opened. The observations of the author lead him to a different conclusion. These observations were made on a patient the opening of whose Eustachian tube was exposed by the nose having been eaten away with lupus, and they were confirmed by manometric observations on patients with perforation of the tympanum. It appears that under ordinary circumstances the tube is loosely shut, and is liable to be opened by variations of pressure in the nose and tympanic cavity, cases presenting differences in the amount of openness, according to the individual peculiarities. In the act of swallowing the tube is closed, and it is opened immediately after the completion of the act. A similar but less active closure was observed during phonation, or strong expiration. The *rationalé* of Politzer's experiment is not that the Eustachian tube is opened during swallowing, but that the posterior nares being closed by the palatine arches, the pressure in the nasal passages in squeezing the ball is sufficient to force open the orifice of the tube; although in the act of swallowing it has been closed. But in phonation the tube is much less fully closed than in swallowing, and a less degree of pressure should be sufficient to force air into it. The author finds that if the ball be squeezed while the patient sounds "a," air is commonly forced into the tube, although of course the pressure is much less than in swallowing, the posterior nares not being closed. This may be an improvement on the original operation of Politzer, which is often sufficiently disagreeable to the patient.

**XXIV. Digestion and Absorption in the Large Intestine** (*Marchwald*).—The author used the opportunity of a case in which a fistula existed in connection with the first part of the colon, to test the powers of absorption and digestion of the large intestine. The conclusion is that absorption is very slow, even of water, and most solutions are hardly at all absorbed, while many of them irritate. The large intestine has no power of digestion; its chief functions being the absorption of water, and the coating of the fœces with mucus to facilitate their passage. It is possible, however, in cases where the stomach is not in a position to digest the food, to institute an artificial digestion in the colon. The gut will act as an oven, and the resulting peptones will be absorbed as they are formed. For this purpose Kùchne's clyster of albumen, and flesh, and pancreas, is the most useful, although it has the objection of being too solid to be passed higher than the rectum.

**XXVI. The Brain in Hydrophobia** (*Benedikt*).—The author finds in the brains of dogs affected with lyssa certain peculiar lesions which, being small and numerous, he denominates miliary. The lesion seems to begin with coagulation in the small veins succeeded by inflammation and hæmorrhage behind the thrombus. The exudation so produced swells up, and becomes hyaline in appearance, the most of the lesions being recognisable by the hyaline aspect. As to localisation, he found them in the olfactory lobe, but they were most abundant in the nucleus lenticularis, and a part of the brain which corresponds with the neighbourhood of the fissure of Sylvius. In the brain of a man who had been affected with this disease, he found miliary formations only differing slightly from those in the dog.

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VOL. LXV., PART I. OCTOBER, 1875.

CONTENTS.—I. Comparative investigations on human, cow's, and mare's milk, by Dr A. Langgard, Berlin. II. Anatomical notes (continuation), by Dr W. Gruber, St Petersburg. III. On the origin of the cells containing blood corpuscles, and the metamorphosis of the blood in the lymph sac of the frog, by Dr O. Lange, Heidelberg (Plates III., IV.). IV. Contribution to microscopic technics, by Dr R. Thoma, Heidelberg (Plate V.). V. On a complication of elephantiasis arabum with cancer, and on the development of the latter, by

Dr N. Stroganow (from the Pathological Institute at Strassburg, Plate VI.). VI. Congenital sarcoma with striated muscle in the kidneys, by J. Cohnheim, Breslau. VII. On the causes and nature of the affection of the cornea after division of the trigeminus, by Dr Senftleben, Breslau. VIII. On the results of embolism of the pulmonary artery, by Prof. Cohnheim and Dr Litten, Breslau. IX. The semi-decussation of the fibres of the optic nerve in the chiasma, by J. Hirschberg, Berlin (2 woodcuts). X. On the occurrence of giant cells in healthy granulating wounds of the soft parts in man, by Dr A. Jacobson, Berlin. XI. What are Pacinian bodies? by Prof. R. Arndt, Greifswald. XII. Smaller communications. 1. Answer to Boettcher's note in correction? by Dr J. Orth. 2. Communication between the ventricles of the heart, by Dr O. Müller. 3. Answer to Letzerich's letter, by Dr L. Mayer. 4. The literature of tattooing in Burmah, by Dr W. Stricker.

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**I. Cow's and Mare's Milk** (*Langgard*).—Cow's milk contains a form of casein which is much less digestible than that in human milk, but the casein in mare's milk is very like human. We could therefore give mare's milk to infants undiluted—if we could get enough of it.

**III. Blood-Corpuscle-holding Cells** (*Lange*).—The experiments given here show the conditions which are met with when blood is introduced direct from the aorta of one frog into the lymph sac of another. Three forms of cells containing red corpuscles are described—one in which single white corpuscles have taken up red ones, or pieces of them—one in which several white have coalesced and contain red corpuscles, and one in which red corpuscles have coalesced into clumps. The two first showed lively amoeboid motion, the last very slow.

IV. A special form of stage is here described for examining the living frog under the microscope.

**V. Cancer in a Case of Elephantiasis** (*Stroganow*).—In this case there was at one part, in addition to the usual appearances in elephantiasis, a network consisting of epithelial cells, and having a distinctly cancerous structure. The form of this network showed that it represented the lymphatic vessels of the skin, and the author believes that

the cells were developed by the lymphatics, and did not take origin in any surface epithelium. At some points the network was continuous with the Malpighian layer of the epidermis, but where that was the case there were no signs of unusual activity of the cells of the epidermis. The case is considered to be one of heterologous formation of epithelium.

**VI. Striated Muscle in Tumours of Kidney** (*Cohnheim*).—The subject of this observation was a child scarcely a year and a quarter old. There was a tumour in each kidney of similar structure, namely striated muscle with round-cell tissue. This is a compound tumour, and, following Virchow, the author would place it in the class of teratoma. The tumours were probably congenital, and arose by a portion of muscle cells from the protovertebral plates being included in the germ of the urino-genital apparatus near which they are situated.

**VII. The Cornea after Division of the Fifth Nerve** (*Senfleben*).—The author traces all the changes which occur in the cornea to the anæsthesia which results from dividing the fifth. The eye no longer protects itself against injury, and the consequence is necrosis and subsequent inflammation.

**VIII. Embolism of the Pulmonary Artery** (*Cohnheim and Litten*).—It is a fact which has attracted considerable attention, that embolism of the branches of the pulmonary artery sometimes produces the hæmorrhagic infarctus (pulmonary apoplexy), and often does not. The point has been more than once subjected to experiment. Virchow obstructed in a dog the artery to the entire lobe of one lung, but found that it remained as full of air as the other. The present authors produce embolism by introducing plugs of paraffin, and they find that generally the lung tissue behind the plug remains unchanged, but in a minority of cases the hæmorrhagic infarctus results. Cohnheim in his researches on embolism came to the general conclusion that if an obstructed artery in any organ is an end-artery—that is, has no anastomosis beyond the obstruction—the result is the hæmorrhagic infarctus or necrosis. Are some branches of the pulmonary artery end-arteries and some not? Normal anatomy concludes from injections made after death that they are all end-arteries. The authors test this by injections made during life. They introduce pigments into the circulation during life, and allow

the natural forces to inject the organs. They vary their experiments by combining injection with embolic obstruction, and, without entering into the experiments, it may be stated that the pulmonary arteries appear to be absolutely end-arteries, that they neither anastomose with each other with the bronchial arteries. When the hæmorrhagic infarctus does not occur from embolism, the circulation is carried on behind the obstruction by the capillaries. Various circumstances explain how this should happen in the lungs. The lung capillaries are wider, there is less friction, and the movement of the blood is aided by the movements of the lungs. Then the lung tissue is in great part nourished by the bronchial arteries, and we know that the infarctus occurs when the nutrition of a tissue is stopped. Generally then the capillaries keep up the circulation, but circumstances may occur which put it beyond their power. The blood moves very slowly in the part behind an embolus, as shown by direct experiment. The line may be overstepped—when several branches are simultaneously obstructed—when the right ventricle is specially weak, when there is great interference with the return of blood from the pulmonary veins as in mitral stenosis, and in these cases the infarctus will be produced. It is noteworthy that where the infarctus does occur, it is not situated immediately behind the embolus—there is a zone of sound tissue, in which the circulation has been kept up. Though embolism thus seldom produces the hæmorrhagic infarctus it is not an innocent occurrence. The circulation persists, but it is reduced to a minimum, and for practical purposes of respiration is nearly nil. A person may die from embolism without the infarctus.

**IX. Semi-Decussation in Optic Chiasma** (*Hirschberg*).—This is one of those rare cases of hemiopia, the right half of both left and right eyes being blind. Examination after death showed the existence of a glio-sarcoma of the left hemisphere, whose pressure on the left optic tract had produced the peculiar symptom. This involves a semi-decussation in the chiasma.

**XII. 2.** This was a case of congenital imperfection of the septum in a child who lived fully two months. There was cyanosis, hypertrophy of heart, and a loud double bruit observed during life, but the autopsy showed that there was no valvular disease.

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## PART II. NOVEMBER, 1875.

CONTENTS.—XIII. On *molluscum contagiosum*, by Dr W. Lukomsky, Kiew (Plate VII.). XIV. Two cases of unsimultaneous contraction of the two ventricles, by Professor E. Leyden, Strassburg (Plate VIII.). XV. Thymol as an antiseptic and antifermentative, by Dr L. Lewin, Berlin. XVI. A new reagent for amyloid substance, by Dr R. Jürgens, Berlin (Plate IX.). XVII. Remarkable development of amœbæ in the large intestine, by F. Lösch, St Petersburg (Plate X., figs. 1, 3). XVIII. Some tumours of the appendages of the brain, by Dr C. Weigert, Breslau. 1. Teratoma of the pineal gland (Plate X., fig. 4). 2. Struma pituitaria permagna. 3. Gumma of the hypophysis cerebri. XIX. Anatomical notes, by Dr W. Gruber (Plates XI., XII.). XX. On the muscle of the large arteries, especially of the tunica adventitia, by Dr M. Bresgen (Plate XIII.). XXI. Abnormal course of the popliteal artery, by Dr W. Gruber (Plate XIV.). XXII. Smaller communication. 1. Contribution to the histology and genesis of the nails, by Dr H. Heynold, Leipzig (Plate X., figs. 5, 6).

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XIII. *Molluscum Contagiosum* (*Lukomsky*).—This form of tumour has generally been looked upon as arising from the sebaceous glands, but the present author is of opinion that this is not the case. He ascribes it to a localised increase of the rete Malpighii, and he gives illustrations in support of this view. The so-called “molluscum corpuscles” are described, and their mode of formation traced, but their origin and significance remain obscure. The contagiousness of this affection implied in its name has been repeatedly proved.

XIV. *Unsimultaneous Contraction of the Ventricles* (*Leyden*).—The two cases published by the author here, added to one published before, make three, in which the peculiar action of the heart was associated with great insufficiency of the mitral valve. In these cases there seems to be a contraction of both ventricles, followed by a contraction of the right alone; and the author endeavours to explain this occurrence. If the mitral orifice is very insufficient, then the blood forced from the left ventricle into the auricle and pulmonary veins will meet the wave coming from the right ventricle, through the pulmonary arteries. By this powerful backward wave from the left ventricle, the contraction of



the right will be almost neutralized, and this ventricle will empty itself very partially, being opposed by the more powerful left ventricle. At the end of the systole the right ventricle will fill quickly, and will be rapidly in a condition for a fresh systole, but the left will be in the opposite condition; the former systole of the right ventricle has failed to send the blood through the lungs, and so the left auricle and ventricle are left comparatively empty. The right ventricle, therefore, contracts alone. This ventricle thus acts twice for every once that the left contracts, but one of its contractions is nullified.

**XV. Thymol as an Antiseptic** (*Lewin*).—Thymol is here rated as superior to carbolic and salicylic acid as anti-fermentative and antiseptic. It may be used for external application, or internal, the dose in the latter case being  $\frac{1}{8}$  to  $\frac{1}{4}$  of a grain three or four times daily, in a tablespoonful of water, or in emulsion of sweet almonds. For external use, a solution of 1 to 1000 is suitable for ordinary purposes, but if a stronger be required, 2 to 4 parts of thymol should be dissolved in 100 to 200 parts of alcohol, and diluted to 1000 parts with water. It is only soluble in water to the extent of 1 in 1000.

**XVI. The Colour Test for Amyloid Substance** (*Jürgens*).—This is obviously the same substance as that described by Cornil as methylaniline. It is stated to be a compound of iodine-methyl, with aniline, and is called by the author, iodine-violet. In addition to the advantages which it has in giving a rosy red colour to amyloid structure, while others remain blue, the author has been able, by its means, to demonstrate amyloid degeneration of tube-casts and epithelium in the urine. The colour was developed in these cases, even though the tube-casts were partially disintegrated.

**XX. Smooth Muscle of Arteries** (*Bresgen*).—By the employment of various methods, this author has demonstrated the existence, in considerable abundance, of smooth muscle in the external coats of the larger arteries. The smooth muscle runs in longitudinal bundles. The general result is, that longitudinal muscles generally exists in arteries from the aorta down to those of medium size.

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TRANSACTIONS OF  
*The Medico-Chirurgical Society.*

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SESSION 1875-76.

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FOURTH MEETING, 3rd December, 1875—Dr Morton, President, in the chair.

*Mr R. Grieve* read

“CASES OF PLACENTA PRÆVIA.”

(See page 159).

*Dr Maclaren* said that the last case of placenta prævia which he had seen happened some years ago. Sir James Simpson was called in consultation. Means had to be taken to expedite delivery, but both mother and child died. He thought in such cases it was very important that apparatus should be prepared and in readiness for the operation of transfusion. Had this been done in the case to which he referred, there would have been a good chance of saving the patient's life.

*Dr R. Scott Orr* said that as Mr Grieve had stated that better results should be obtained in practice among the better classes, he might state the results in his own practice among these classes. In his practice, extending over thirty years, he had four cases of placenta prævia. In the first the hæmorrhage was enormously great on his arrival; the head presented in the usual way, and he at once turned, and saved the woman. The child was still-born. In the second case, the woman had been standing at the glass dressing her hair when the hæmorrhage occurred. He was instantly sent for, and found a stream of blood from the glass to the bed. She was perfectly blanched in countenance. He found the os rigid, but partially dilated. He determined to dilate the os as far as possible. At the suggestion of Dr Leishman he used for that purpose Barnes' dilators, and these he would strongly recommend to the members of the Society in similar cases. The sooner delivery was effected the better, and whether the os was dilatable or not he would make the attempt to dilate. In this case the os was gradually dilated, and turning was easily effected. The child was still-born, and the mother made a good recovery. The last two cases occurred in the same lady. On the first occasion the hæmorrhage had been frequent before delivery, but not in such quantity as to induce him to interfere. At last, however, it became necessary to do so, and he was fortunate enough in succeeding in turning and delivering a living child. Within two or three years thereafter the woman was in a similar condition. She had had frequent floodings at the coast, but had not come to town. At last she came to town, and he was sent for. He found that in this instance the placental presentation was only partial, and it was not necessary to turn. The head came down and acted as a plug. The child was born alive. The results, then, in his cases were these: all the mothers recovered, but two of the children were lost. Mr Grieve was quite correct in saying that it was easy to turn in these cases. The reason was that the hæmorrhage caused a relaxation of the muscular fibres.

*Mr John Reid* had had four cases of placenta prævia in his practice. In the first case, that of a woman 35 years of age, he found the os very rigid, so much so that he could not introduce his hand. Being in country practice, he went away, thinking that the parts would dilate by the time he got back. In the meantime very severe flooding set in, and the woman died. In the second case he plugged very effectually, and that case was entirely successful. In the third case he turned, with the result of saving the mother, though the child was dead. In the fourth case he found the feet presenting. He had attended the patient before, and knew that she had a roomy pelvis. He therefore pulled down the feet, and extracted the child. He fully agreed with *Mr Grieve* as to the fallacy of statistics in these cases. To calculate upon saving the mother and child in twelve cases out of thirteen was to take too sanguine a view of this complication.

The discussion was then adjourned to December 17th, when it was re-opened by *Dr Lothian*.

*Dr Lothian* commenced by dividing the cases met with into two classes—those in which the placenta was only partially situated over the os uteri, and those in which it was completely so. In the first class, where the os uteri was dilated or dilatable, membranes protruding, head presenting, pains vigorous, and little hæmorrhage, the membranes should be ruptured, which would still further assist uterine action. The head pressing on the os, would arrest hæmorrhage. Ergot might be given, if necessary—the aqueous infusion, freshly prepared, being the preparation he preferred. In the second class of cases, as soon as the os was dilated to the size of half-a-crown, or even less, but at the same time dilatable, the hand might gently and cautiously be introduced by the edge of the placenta into the uterus. The membranes should not be ruptured till the hand was well up in the uterus. The retention of the liquor amnii would assist very much in finding the feet, in turning, and withdrawing the child. The uterus should not be emptied too suddenly, lest syncope should ensue. The first gush of blood on the introduction of the hand would be stopped by the arm in the first instance, and afterwards the body of the child acting as a plug. With regard to the source of the hæmorrhage, it was caused by vigorous contractions of the uterus giving rise to expansion of the cervix, and consequent severance of the connection of the placenta from its uterine attachment round the os. The blood came from the ruptured vessels of the placenta, but principally from the uterine vessels. The hæmorrhage from the placenta was very soon stopped by the sealing of the blood-vessels from the formation of coagula; while that from the uterus was stopped or checked by the expansion of the cervix causing compression on the uterine vessels. The most dangerous cases were those of feeble uterine action, in which each successive contraction was just sufficient to separate a small portion of the placenta, without causing sufficient expansion of the cervix to compress the uterine vessels. In these cases *Barnes'* dilator was very useful, both in expanding the cervix and acting as a plug. In plugging, the vagina should be not only fully, but *firmly* filled, to prevent the trickling of blood by the side of the plug. That the hæmorrhage did not come from the placenta alone was proved (1) by the fact that the discharge was intermittent, ceasing or being checked during the intervals of pain; (2), by the fact that the children are ever born alive, it being well known that a child *in utero* cannot survive the loss of even a small quantity of blood; and (3), by the occurrence of cases of *post partum* hæmorrhage, after the placenta had been removed *in toto* from the uterus. With regard to his own experience, during twenty-five years, he had attended six cases of

placenta prævia; the children were all born alive, but one mother died.

*Mr Griev* detailed an additional case which had occurred in his practice—or rather in a patient of his—since he had read his paper, but which, from indisposition, he had been unable to attend personally. The case was as follows:—A strong, healthy woman, in the eighth month of her second pregnancy, was seized with severe flooding while in bed, which stopped without medical treatment. Nine days afterwards, hæmorrhage again set in, but more severely. The case was attended to by Dr Laurie and Mr Lind, to whose kindness he was indebted for the details. They found the os dilated to the size of half-a-crown, and completely covered by the placenta, no free edge being felt. They at once plugged the vagina, which arrested the hæmorrhage for a time. As the pains were slight, they gave ergot of rye, and waited for the effects. The pains shortly became stronger. In an hour the plug was withdrawn, along with many large clots. They tried plugging again, but with no good effect. The blood came in great gushes at every pain. The patient now beginning to get faint, turning was effected quickly and easily. The os was soft, and offered no resistance to the introduction of the hand; and as soon as the body came down, the blood entirely ceased. The placenta was soon expelled, and no more hæmorrhage occurred.

*Dr Charteris* had attended one case in London, shortly after he had graduated, and gave an amusing account of the practical difficulties of a young practitioner, quite familiar with the rules laid down by his teachers for the management of placenta prævia, when he found himself face to face with an actual case. He concurred with previous speakers that in cases of complete placental presentation, the best thing was to turn and deliver as soon as possible.

*Dr Hugh Thomson* gave some details of a case in his practice which did not present the more dangerous characters of that complication.

*Dr Fergus* said he was sceptical of the value of special rules laid down for various classes of cases. Every serious case would make such a call on the resources of the practitioner as no special rules would enable him to meet. The one point to be kept steadily in view was to deliver as soon as possible. If he found the os small and rigid, he would plug thoroughly with a cambric handkerchief. This not only served to restrain the hæmorrhage, but by reflex action increased uterine activity. He had been called to a case which tried his resources to the uttermost. To restrain the hæmorrhage he tried everything he could think of. The woman's strength was gradually draining away. He plugged very firmly, and this induced the proper reflex action. As soon as the os was dilatable he delivered as speedily as possible, taking care not to empty the uterus too precipitately. With regard to his six cases, his results had been satisfactory, for all the mothers recovered, but he had lost all the children. In the treatment of hæmorrhage he had in extreme cases adopted a plan which had been attended with very promising results. The method was to compress the abdominal aorta, and the brachials, and thus by mechanical means prevent the flow of blood to the uterus and extremities, and get it to circulate in the vital organs, the heart and the brain. The means was no doubt mechanical, but the method was based on physiological principles. He had never known it to fail in arresting the hæmorrhage, and thus *gaining time*, which was a matter of first importance. He remembered that many years ago he was called to see a

lady who had been injured driving over a ford. The liquor amnii had come away in the seventh month, the labour was natural, the child extremely small. The placenta was removed, and the lady made comfortable. He was attending to the child, when his attention was directed to the expression of the lady's face. On putting his hand on the abdomen he found it as large as before delivery. He gave a little champagne which was vomited, iced brandy which was also vomited. The flooding continued; he then tried compression of the abdominal aorta, which had the effect of checking the flux; but, as everything was rejected, the patient became pulseless, and appeared to be sinking. He had observed an enema syringe standing on a side table, and, seized with a sudden inspiration, he injected, at intervals, three glasses of spirits into the rectum. The result was immediate and most satisfactory, but he wished specially to mention a curious physiological effect on that occasion. It was well known that in cases of severe hæmorrhage there existed great tolerance of stimulants. They did not produce their characteristic intoxicating effects in such circumstances. But in that case these three glasses produced a great degree of intoxication, indicated by the semi-comatose state in which she lay, with stertorous breathing. Now he had in similar cases given a whole bottle of whisky by the mouth, without any intoxicating effect being produced. The explanation he took to be this: when taken by the stomach in these cases, a great part of stimulant became assimilated, and thus the characteristic efforts were avoided; but when given per rectum, the stimulant was absorbed, pure and simple.

*Dr Scott Orr* said that he had no great confidence in the effect of ordinary plugging in placenta prævia. In most cases the os was more or less open, and a Barnes' dilator could be introduced very easily. These dilators served the double purpose of plugging and dilating, and in a very short time turning was comparatively easy. The sooner delivery was effected the better, and in most cases turning was the proper course. In some cases in which the placenta was not completely over the os uteri, the completion of labour might be left to nature. There was a rare species of hæmorrhage which might be called intra-uterine, or concealed. The case might be proceeding favourably, when suddenly the patient would be seized with a fit of syncope, without any apparent cause. In such cases the placenta was more or less completely separated. There was no external hæmorrhage, or at least not much, as the head prevented its escape. Unless the practitioner was very prompt, the patient would be lost; and, as a matter of fact, most of these cases died. The treatment was the same as in placenta prævia. He had seen only one such case, having been called in by the attending practitioner. The patient had been very suddenly seized with the symptoms he had described. They came to the conclusion that there was internal hæmorrhage, and proceeded at once to turn. This was easily effected, and was followed by an enormous gush of blood, with large clots. She never rallied. The late *Dr Joseph Bell* had read at that society a paper detailing three such cases.

*Dr Barr* said that he had attended four cases of placenta prævia, with the death of two of the mothers and three of the children. In one of them the placenta was only partially over the os, and on evacuating the liquor amnii the bleeding ceased. About twenty months ago he saw a very dangerous case of this complication. The patient, whose fourth pregnancy it was, had engaged a midwife, who had been in attendance for some days, but when he was called, the midwife had deserted the case. The hæmorrhage had continued for three days in considerable quantity, and the patient's condition was very alarming. She was pulseless, and evidently fast sinking. The vagina was occupied with clot, and the os was about the size of a crown

piece, with the placenta implanted over it. The question was whether to plug the vagina, or to empty the uterus at once? He adopted the latter course. Having given her a little spirits and water, he introduced his hand, and reached the membranes. The rest was comparatively easy. The child was born dead. The woman rallied for a few hours, but she died in a week. Had a qualified person been in attendance from the beginning, a more satisfactory result might have occurred.

*Dr Renfrew* had had two cases of placenta prævia; both the mothers died. He had also seen one case of concealed hæmorrhage, like that described by *Dr Orr*. The patient had been in labour for some hours, and when he saw her in consultation, she was almost pulseless, and died within ten minutes. The only conclusion that the attending practitioner and himself could come to was that there was intra-uterine hæmorrhage. As a rule, there could be no doubt that turning as expeditiously as possible was the correct method in cases of complete placental presentation. At the same time, in a case like that of *Dr Barr*, in which the hæmorrhage had gone on for days, and the economising of every drop of blood was of importance, turning was of doubtful utility.

*Dr Scanlan* said that in regard to the point incidentally raised by *Dr Fergus*, he could bear testimony to the very great value of stimulants per rectum. He had seen the practice tried many years ago, in cases of cholera. The results he had seen in such circumstances were certainly most satisfactory. He had no doubt that in cases of severe hæmorrhage the practice would be equally satisfactory.

*The President* asked whether in some cases of placenta prævia the induction of premature labour might not be of advantage? This suggestion involved the question of viability of the child. He also enquired whether in cases of women who were recovering from the prostration consequent on prolonged hæmorrhage, opium had been tried? That drug had long had a reputation among surgeons in extreme cases of hæmorrhage.

*Mr Grieve* said that in regard to the induction of labour prematurely, one of the cases he had related was a premature case at the seventh month. Opium had been frequently had resort to. With regard to the use of *Barnes'* dilator which had been insisted on by *Dr Orr*, no doubt these dilators were very useful, but one did not usually carry them in the pocket, and they were therefore not in all cases immediately available. *Dr Barr* had informed him that a very good dilator, which was found in almost every house, was a good sponge. He thought *Simpson's* practice was quite erroneous. The entire separation of the placenta, whether or not it would arrest hæmorrhage, could not be effected without inserting the hand into the uterus, and at the risk of such an amount of hæmorrhage as placed that operation in the list of those that were decidedly bad and objectionable. The same remark applied to a less extent to *Barnes'* practice of partially separating the placenta to such an extent as to let the child's head pass. Turning was in every way a safer and better method of procedure.

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SIXTH MEETING, 7th January, 1876—*Dr Morton*, President, in the chair.

*Mr James T. Whittaker*, M.B., Clarendon Place, Glasgow, was admitted a member.

I. *Dr James P. Cassells* read a paper

“ON UNRECOGNISED EAR DISEASES IN THEIR RELATION TO LIFE ASSURANCE.”

*Dr M'Call Anderson* said that he thought that *Dr Cassells* had taken rather too gloomy a view of the results of chronic diseases of the ear. He (*Dr Anderson*) would never think of adding an extra rate of premium in cases of simple chronic catarrh or chronic ear disease generally, in which there was no syphilitic taint, and no suspicion of caries of the bone. In cases of constitutional syphilis he would not necessarily reject an applicant; he would take into account all the circumstances of the case. In cases of secondary syphilis he would not necessarily reject if the case were mild, though he might put on some small extra premium. If indeed there were any marked tendency to suppuration, and especially a scrofulous taint co-existing with the other affection, then he would reject altogether. In regard to chronic suppuration of the middle ear, he could not say that in every case he would put on an extra premium. If, as in the case detailed, there was any suspicion of caries, he would reject at once. It would be a good rule for practitioners, in cases of chronic suppuration of the ear, to send the case to an aurist to ascertain whether caries were at the bottom of it.

*Mr John Reid* said that chronic ear discharge was generally a result of scarlet fever or measles, and in the whole of his experience, which had been ample, he did not recollect of any such case terminating fatally. Now, his opinion was, that as these cases were not likely to result in premature death, they should not be considered at all in reference to life assurance. He had seen three cases of abscess of the brain, in two of which there was a discharge from the ear, but it was always easy to distinguish such cases from one of chronic discharge from the ear alone. No doubt the consideration of such a case would be seriously complicated by the person being of a scrofulous habit, or tainted with syphilis. But he would attach no importance, in a life-assurance point of view, to a simple discharge from the ear.

*Dr M'Lean* said that in listening to the paper, it had dawned on him that the gentleman to whom it referred was a patient of his own. *Dr Cassells* had accurately enough described the circumstances of the case, with one or two exceptions. The patient did not go specially to Germany to consult an aurist; but being there on a tour, he was recommended to take the opinion of a German specialist. Then again, the gentleman had, in the first instance offered to the agent of the company in which he was first assured, to surrender his policy; and this offer, after some time taken to consider, was ultimately taken advantage of. With regard to the facial paralysis, he had certainly not observed it; and he might mention that the gentleman was a good mimic, and he (*Dr M'Lean*) trusted that he was not on the occasion referred to exercising his mimetic powers. The treatment of the German aurist had not improved the state of the ear. He would like *Dr Cassells* to mention the exact grounds on which he diagnosed carious bone. The grating feeling experienced by the patient in the introduction of the probe, in the absence of any positive recognition of the diseased bone by the operator, appeared to him insufficient to warrant the conclusion arrived at. He had attended the patient at the time that his ear suppurated. There was a large suppurating abscess, which, before it burst, filled the external meatus; but there was an entire absence of those characteristic head symptoms which one would naturally expect in a case of disease of the middle ear. It would have been satisfactory to have

had some statistics of the fatality of cases of chronic discharge from the ear. He agreed with Mr Reid that such cases seldom terminated fatally.

*Dr Gairdner* said he was the insurance officer in the present case. The man came into his room without any knowledge or suspicion of the fact that he had an affection which might disqualify him for being accepted. *Dr Cassells* had hypothetically given him credit for discovering the affection; but he could really claim no credit in the matter. There was a little deafness, and on enquiry the gentleman said that he had a long-standing discharge, which had not dried up for sixteen years. There was also a slight trace of paralysis of the portio dura. These circumstances made it clear to him that the case must be rejected altogether, or loaded so high as practically to be a bar to life insurance. The hardship of the case, and the feeling of personal responsibility in rejecting the life of a man who up to that moment had no suspicion that he was not a perfectly good life, induced him to take the course he did take, which was to make offer to the gentleman that the opinion of *Dr Cassells* should be taken as to this ear affection. With regard to the point raised as to the alleged non-fatality of chronic discharge of the ear, that was, as long ago as fifty years since, conclusively settled by *Itard*, who proved that many such cases did end in death. He (*Dr Gairdner*) had himself seen a considerable number of such cases terminating fatally. He, however, concurred with *Dr Anderson*, that *Dr Cassells* had been rather severe in some of the principles he had laid down.

*The President* said he had seen a number of cases of suppuration from the ear which had terminated fatally, but they had nearly all been in youth. It would be interesting to know the probable duration of life in cases of chronic ear discharge. In the present instance had the person been insured at the beginning of the disease, the office would not by this time have lost by him. In a disease which could run a course of sixteen years without apparently affecting the health, the question of insurability could scarcely be said to emerge at all. The paralysis, however, if it existed, was a very important feature.

*Dr Anderson* wished to explain that he was quite aware that such cases occasionally terminated fatally. But it was only aural surgeons and consulting surgeons who, as a rule, saw these cases; and, for insurance purposes, it would be better to get information from general practitioners who saw the mass of ordinary cases. It was only on a system of averages that statistics for life assurance could be framed. The question might be put thus: Take 100 healthy persons with small discharge from the ear without caries, and put alongside of them 100 other persons without such discharges, would the average lives of the latter exceed that of the former?

*Dr Watson* said that the central question in regard to the present case was, did caries exist? The paralysis, admitting its existence (which appeared to be doubtful), did not prove it. *Dr Cassells* did not detect by his probe any diseased bone. He said that it had not the ordinary feel of carious bone. What he relied on—viz., the grating feeling experienced by the patient—could arise though the bone had been covered with membrane. As far as he could make out, there was no evidence of the bone being diseased. The eligibility of the case for insurance depended altogether on whether there was diseased bone.

*Dr Foulis* said that one test of the fatality of diseases of the ear was afforded by noting the proportion of cases which came to the *post-mortem*



table of an hospital. His own experience led him to say that the number of cases of deaths traced in the pathological room to ear disease was relatively very small. Cases of injury and of abscess of the brain with ear discharge were not uncommon. But chronic ear disease, tested by this standard to which he had adverted, did not appear to be a common cause of death.

*Dr Cassells*, in reply, said that in regard to the statement of the last speaker, an experienced pathologist in Glasgow, who was not present that evening, had informed him that the number of cases of death from ear disease, as verified on the *post-mortem* table, was something astonishing; and that gentleman had offered to procure for him any number of pathological specimens of ear disease. With regard to the remarks of *Dr Watson* and others, he must point out that he had not said that he absolutely diagnosed caries of the bone. He had only said that it was probable that caries was present. The persistence of the discharge for so very long a period, coupled with the paralysis, pointed strongly in the direction of caries. The idea of the paralysis being *mimetic*, if seriously suggested, might be dismissed with the remark, that there was no one present that the patient could imitate, except himself; and he (*Dr C.*) did not suffer from paralysis. With regard to the grating sensation experienced by the patient in the introduction of the probe, he had been careful in his report to place no reliance on it. He had seen several cases in which there was extensive destruction of the tissues, and no symptoms till within sixteen days of death. He was glad to find that those circumstances of the case which he had given on hearsay, turned out to be substantially accurate. The alum lotion, which the German aurist had prescribed, would coagulate the discharge, but would have no lasting effect. With regard to the fatality of ear disease in general, it must be remembered that the cases in which there was a *post-mortem* examination were very exceptional. Let any one sceptical as to the mortality of ear disease examine *Toyubee's* pathological collection. Only lately a man was brought in to *Guy's Hospital* in a partially insensible condition, and breathing heavily. The physician was about to make the ordinary examination, when he noticed a slight emphysema about the neck. On examining the head, he found evidence that the man was dying from ear discharge. He had himself lately seen a case, in a young woman, in which there was a kind of slight general malaise, but no marked symptom. She died suddenly, and on *post-mortem* examination extensive disease of the ear was found.

## II. *Dr Hugh Miller* related a case of

“DERMOID CYST, WITH UNUSUAL SYMPATHETIC SYMPTOMS.”

(See Page 170.)

*Mr John Reid* said that the case was one of the most remarkable, in many respects, he had ever heard of. The great extent to which suppuration had gone on made the train of sympathetic affections the more remarkable. He knew of no satisfactory theory to account for the occurrence in the ovary of such a substance as hair, except on the supposition of previous conception. But in this case of *Dr Miller*, there was no suspicion of that. He was inclined to think that the inflammation occurring in the ovary from the presence of the hair, had given rise to very extensive consecutive inflammation, and that this had extended to the pelvic cellular tissue, eventuating, in fact, in cellulitis, which was the cause of the pus ultimately found. He did not think that *Dr Watson's* case was at all analogous to *Dr Miller's*.

*Dr Watson* said that there were many interesting theoretical questions suggested by *Dr Miller's* paper which he would not touch upon, but would confine his remarks to the practical subjects of the diagnosis and treatment. In the first place it was a remarkable fact that perhaps in none of these cases was there any distinct set of symptoms which led to the diagnosis of pus. In regard to the second case, which was supposed to be one for ovariectomy, there were absolutely no symptoms showing it to be a large abscess. It was not a very unusual thing for both physicians and surgeons to be deceived as to the nature of various tumours. He had seen a great many mistakes made as to these—uterine tumours brought into the wards for ovarian tumours: cases of ascites opened on the supposition of ovarian disease. So it was not very extraordinary that an abscess limited to the lower part of the abdomen, and rather to one side, should be mistaken for an ovarian tumour suitable for ovariectomy. Another point was the great advantage of the aspirator in these cases. Incision was no doubt the proper treatment; but it was easy to see the objections to incision in the first instance. But the aspirator was perfectly safe, even in cases of great exhaustion. In cases of doubtful abdominal tumours no one would now think of an incision without a previous exploratory use of the aspirator.

*Dr Miller* thanked the Society for the way in which they had reviewed his paper, and only regretted that it had not elicited a fuller discussion, especially in clearing up the connection between the central disease and the sympathetic affections.

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SEVENTH MEETING, 4th February, 1876—*Dr Morton*, President, in the chair.

I. *Dr George Buchanan* read a paper

“ON EXCISION OF ISOLATED BONES OF THE TARSUS, PRESERVING A USEFUL FOOT; WITH EXAMPLES OF EXCISION OF THE ASTRAGALUS, THE OS CALCIS, AND THE CUBOID.”

Patients on whom the operations had been performed were exhibited.

Scarcely any discussion followed the paper.

II. *Dr Strethill H. Wright* read

“SOME REMARKS ON THE TREATMENT OF THE SICK POOR.”

*The President* said they would agree with *Dr Wright* that the medical officers of Poor Law Hospitals did not occupy the position which was their due. These officers ought to be to a considerable extent, at all events, beyond the control of the Board. It had occurred to him that one desideratum in the system was a Medical Board or authority which could exert pressure, not only on the medical officer, but on the local Board (of which the proposed authority would be quite independent, being responsible only to the Board of Supervision). He invited a free expression of opinion on that very important subject.

*Dr George Buchanan* said that one of the most important points raised by the paper was the question what was to be done with the large number of sick poor who at present died without any medical assistance, and also the corresponding number who were ill, but did not die. *Dr Wright's* suggested scheme was for the distant future. Its adoption would not be

for at least one decade. Was there no provisional and temporary expedient which could be tried in the meantime? He would suggest that the increased utilization of the system of district surgeons, and especially of the out-door Hospital Dispensary, would somewhat meet the want. The staff of these hospitals once increased, and the attaching of fourth-year students to the various district surgeons, a much larger number of these cases might be overtaken than at present. The discussion was at this point adjourned.

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EIGHTH MEETING, 18th February, 1876—Dr Morton, President, in the chair.

I. *Dr Lothian* exhibited a specimen of

“SCHIRRUS OF THE ARM”

in a man sixty years of age, which had necessitated amputation at the shoulder-joint.

II. The adjourned discussion on *Dr Strethill Wright's* paper on

“TREATMENT OF THE SICK POOR”

was begun by

*Dr Hugh Thomson*, who said that no doubt the principle of the Poor Law in Scotland was simply to do for the poor as little as possible. In regard to the non-pauper class, all that could be said to be done at present was that when the bread winner of the family was disabled, the inspector gave an order for his medical relief. The whole subject was beset with difficulties. One principle was clear, in giving relief they should do it in a way the least fitted to pauperise. He was not sure whether in organising a scheme for the medical relief of the poor, it should be done on a voluntary charitable basis—on the same principle as obtained in the ordinary hospitals, or that the principle which at present obtained in the treatment of contagious diseases might not be extended so as to include other diseases. The community should specially charge themselves with the care of the sick poor, and that on a scale commensurate with the existing wants.

*Mr John Reid* understood *Dr Wright's* paper to be, in substance, an attack on the system in force in the Barnhill Hospital for the treatment of the poor in that institution. He would have liked had *Dr Wright* been more specific in his statistics; he desiderated information in regard to the average amount expended on each sick pauper per week. He (*Mr Reid*) had gone over the accounts of the Barony, City, and Govan parochial systems. He found that the total expenditure on the physical wants of each inmate averaged weekly from 2s 3d to 2s 9d. How much was it for each sick pauper? He was under the impression that the Board of Supervision had laid down rules for the cure of the sick in hospitals, providing for their necessary comfort, and that these rules could not be infringed with impunity. Greatly exaggerated statements had recently been made as to the weekly cost of each inmate in Barnhill, so small a sum as 1s 1½d having been gravely stated as the total outlay. He (*Mr Reid*) had made inquiry at two members of the Board, who informed him that the inmates could not be kept in life upon such a sum. That brought them to the question: Where did the money go? The amount levied was known and the number of inmates, also the salaries, cost of coals, and other things; and it was easy to calculate the amount which each inmate cost per week.

He thought there should now be a revision of the scale, as the cost of living was one-fourth or one-third larger than it was when the existing rules were made. In regard to the sick poor, he could not see that the medical officer had much ground of complaint, if it were the case that he had the power to order, in any case, extra nourishment.

*Mr John M'Carroll* said that he had been a district medical officer, and could bear testimony to the stinginess and parsimony with which the sick poor outside were treated by the Board. He had himself been called to account for giving on one occasion an order for a double supply of wine, although the amount ordered was to last double the time, and was therefore not in excess of the usual quantity given in that case. At that time he suggested to the committee that the inspector had better, on sending him to a case, say how he wished it treated. That suggestion was made, on his being told that his patient belonged to a poor Highland parish, from which they would be unable to obtain any but a small allowance.

*Dr David Taylor*, Paisley, said that his knowledge of the working of the Poor Law in his district enabled him to say that the pauper was better treated than a good number of the hard-working population; and in regard to medical attendance, they were better off than not a few above them—in fact, they were as well attended as many rich people.

*Dr Thomas* said that before discussing *Dr Wright's* excellent paper, it would have been better had it been in their hands in a printed form. He agreed with *Dr Wright*, that the term "pauper" was offensive to the feelings, and would prefer the word "poor." In regard to the great number of uncertified deaths in Glasgow, and the great number of sick who received no medical aid, that subject had long engaged his attention, and in 1873, in some "Notes on Hospitals," which he had published, he advocated the utilizing of the Dispensary at the Infirmary, by sending out students to applicants unable to pay for advice—the students to be under the careful supervision of a medical man. This was the system carried out at the Lying-in Hospital, and the Edinburgh Dispensary. This, however, would necessitate the compulsory attendance of students at the Dispensary, a measure which the Glasgow Examining Boards should enforce. There were now in Scotland 62 poor-houses, capable of containing 14,000 persons, and in view of this fact, he thought that a Visiting Medical Officer should be appointed to inspect these houses, instead of a Law Officer, as at present. As they were at present constituted, it would hardly do for medical men to take the entire charge of poor-houses. The duties, such as that of coming into contact with disorderly characters, &c., were not compatible with those of the medical profession. As to the establishment of separate hospitals for treating the sick poor as under the Metropolitan Asylum Act, that opened up the question of laying on an assessment for the maintenance of hospitals, and that he was not prepared to support. But as it had taken upwards of ten years before the Board proceeded with the erection of Woodilee Asylum from the time it was first suggested, *Dr Wright* might expect that it would take an equally long time to mature the idea he had promulgated. It would hardly do for a Board responsible to the public to run into an expenditure, involving thousands, without due consideration. With regard to the constitution of the Parochial Board, which *Dr Wright* would alter, he might state that having had upwards of six years' experience of the Barony Board, as their medical superintendent at Barnhill, he knew that the members gave considerable attention to all that concerned the house and its inmates. No doubt yearly election was a

faulty system. The fact of their having annually to face their constituents prevented the managers from carrying out necessary measures of great importance, so quickly as they would do if elected for a longer period. The power of election, however, was best in the hands of the ratepayers. The statement of Dr Wright, that he had reduced the mortality in Barnhill from 17 to 13 per cent., seemed rather to imply a slur on his predecessors in office, though doubtless that was not his intention. He thought he could speak on that point without giving offence, having had charge of Barnhill for six years, and having also had the greatest number of admissions into it, as well as the largest daily average population during any one year, with the smallest mortality and expenditure. He claimed no particular credit in the matter. In 1868, the mortality, under Dr Wright's immediate predecessor, was within a fraction of the mortality obtained by Dr Wright, but it increased in succeeding years. The same thing might occur again; a good deal depended on the gravity of the cases admitted, and on the character of the steady population of the house. If there was a large increase of infirm, the greater chance was there of having a high mortality.

*Dr Graham*, Paisley, said he had had ten years' experience in the treatment of the sick poor. However well adapted Dr Wright's scheme might be for Glasgow, it would not be suitable for smaller towns. In such places it would not do to have one hospital for the treatment of the really sick, another house for the infirm, &c. Indeed, there was really no such distinct gradation in the inmates of poor-houses as the division of Dr Wright implied. All persons admitted to the house were in some way disabled. Every one was more or less sick. Any measure which would receive legislative sanction would be one which met the necessities not only of such a city as Glasgow, but the country generally. In regard to the constitution of the Parochial Boards, he thought they should be permanent in their character. Under the present system there was a kind of competition which parish would be cheapest per head. This result was to be deplored.

*Dr Murdoch Cameron* said that, as one of the district medical officers of the Barony Parish, he had attended a meeting of medical officers called at the instance of the Board in regard to affording medical relief to the class just above paupers. It was the general belief of those present that the class above paupers nearly all got medical relief. They went to the Infirmary Dispensary, to the Havana Medical Mission and its branches, and other places. In some cases congregations gave them lines of admission to hospitals. Personally he had never any difficulty or disagreement with the managers. In regard to stimulants, he made it a point not to order any; when he thought them necessary and would not be abused, they were given by private channels. He was of opinion that when stimulants were given they should be disguised, by being coloured with some such substance as infusion of chiretta. It must be remembered, in regard to the class above paupers, that many of them were quite able to pay for a doctor, if they were provident in their habits. A population which could easily support two or three medical men was found without one, simply because of the habits of the people. When connected with the University Lying-in Hospital, he had been brought into contact with this class of the population.

*Dr Goff*, Bothwell, said that for twenty-two years he had been a parochial medical officer in a parish with a population numbering 25,000. He was much astonished to hear of the number of uncertified deaths in Glasgow. In his parish there were no doubt a few such deaths, but they occurred not in the pauper class, but in the class immediately above them,

who were sometimes too proud or too ignorant of the pressing danger to call in the doctor, especially in children's diseases. These people would sometimes apply to the chemist for medicine. But the pauper class was well attended. The inspector never refused relief. That official sent an order to the parish surgeon, who at once attended to the case. In the matter of nourishing food, stimulants, &c., he (Dr Goff) was never interfered with. He prescribed what he thought necessary, and had never been called to account in any way.

*Mr John Barlow*, Town's Hospital, said that two very important questions raised by Dr Wright's paper had not been touched on in the discussion. One of these was the question of pauper nurses. His own experience of such a system enabled him to say that it was radically bad. The only inducement these women had, was the small-extra allowance granted to them; and of learning their duties, or performing them, they cared nothing. The other point was the paucity of medical attendants. To assign some 300 or 400 patients to one medical man, was simply to ensure that the work could not be satisfactorily done. In regard to his powers, no doubt he could order extra nourishment, but his Board would soon compare his scale with that of other houses, and signify their displeasure to him.

*Dr Wright*, in reply, said that he had always kept the personal question between himself and his Board as a private matter. It had to some extent been imported into the discussion, but for that he was not responsible. In regard to Dr Thomson's remarks, under the present system two kinds of disability entitled to relief. One was natural disability arising from sickness, infirmity, &c.; and the other, criminal disability, from desertion of husbands and fathers, and similar causes. Among the "able-bodied" population, 84 per cent. were children; and among the men, who were supposed to be able-bodied, hardly one would be passed by a doctor as able to do a day's work. His scheme would no doubt require that the legislature be approached, but it would not involve any radical change. At present, the Board of Supervision had the power of regulating in what way the Board should be elected. Voluntary organisation would not be adequate to meet the evil. The history of methods of relief brought out the fact that the voluntary element was the weakest point. In all cases a legal frame-work was required to make the system work well. The suggestion that all the sick poor should be treated in the hospital was simply impracticable. The house would be filled twenty times over. The question of death-rate he had alluded to in his paper, and had shown that coincident with the raising of the dietetic scale was the reduction of the mortality. Dr Thomas' scheme of out-door relief had been in operation at the Edinburgh Dispensary, with the working of which he (Dr W.) was personally familiar, and he could aver that the system was far from overtaking the wants of that city. A medical man should not be at the head of a poor-house, but he should be at the head of the poor-house hospital. The requirements of the sick poor should be judged of by the medical superintendent only. With regard to Dr Cameron's difficulty in extending medical relief to the class above that of paupers, his experience was that between the pauper class and that immediately above it there was in Glasgow hardly a true line of demarcation. He would have wished Dr Cameron to have produced statistics for his statements in regard to the present condition of these classes as to medical attendance. He took leave to doubt whether Dr Cameron's statements would stand the test of statistical verification. Dr Wright again referred to the facts and figures in his paper in regard to the working of the system of sick attendance in Ireland, as compared with Glasgow.

# Glasgow Pathological and Clinical Society.

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SESSION, 1875-76.

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THIRD MEETING, December 14th, 1875.

*Dr Thomas Reid* demonstrated the ophthalmoscopic appearances in a girl suffering from double OPTIC NEURITIS. The patient, aged 13, had been seized suddenly, two months before, with giddiness, sickness, and frontal headache, and in a few days after noticed that her left eye was blind; there was a return of the acute symptoms in about a fortnight, when the right eye became also dim. She was first seen at the Eye Infirmary, three weeks after the first attack, and could not then distinguish light and shade; both papilla were found engorged. In a week the papilla of left eye became more defined at its outer margin, and the vision was improving. In another week she could read the letters of No. 19 (Jäger) with this eye, objects being held to the left to about 40 deg., and she could count fingers with right. The optic discs were now found to be oval shaped vertically, the right disc being more defined and pale, the arteries reduced in size, and accompanied by white streaks. In a few days, however, renewed headache and hallucinations supervened, and there was complete loss of vision. She was now admitted as an in-patient; and when shown to the Society some improvement in the vision had again occurred, so that she could read No. 20 with the left eye and count fingers with the right, but the ophthalmoscopic appearance remained the same. *Dr Reid* thought that the sudden accession of blindness and the headache seemed to indicate effusion into the sub-arachnoid space and along the sheath of the optic nerve, and the absence of inflammatory symptoms pointed likewise, he thought, to œdema of the papilla from effusion, rather than to changes associated with cerebral tumour. Œdema of the papilla was well known to be apt to lead to atrophy; and the present oval shape of the discs seemed to hold out but little hope of recovery of the sight.

*Dr Thomas Reid* showed two patients with RETINITIS ALBUMINURICA. The first was a man forty-one years old, and had been affected with palpitation and other cardiac symptoms for some time; he had had rheumatism; there was evidence of cardiac hypertrophy when he was shown to the Society, but not of any valvular lesion. In the beginning of October, he had an attack of insensibility for eighteen hours, followed by paralysis of the left limbs, lasting, however, only for a couple of days. Four weeks

after the fit, the vision became affected; and, on admission to the Eye Infirmary on November 17th, he was barely able to read No. 20 (Jäger); the right eye was a little better than the left. The urine was albuminous (one-sixth), specific gravity 1014; the quantity was said to have been large, although not markedly so after admission; a few hyaline tube-casts were found in the sediment. The pupils dilated only partially, although quite regularly, with atropine. Ophthalmoscopic examination showed the fundus of each eye to be completely occupied by the characteristic white deposit of retinitis albuminurica; this interfered with the definition of the optic disc—which appeared, however, somewhat atrophied; the retinal vessels were greatly reduced in calibre. In the left eye, the choroid was atrophied in a considerable portion below and outside the disc, and pigment was seen in this situation. Dr Reid said a point of interest in this case was, that the partial paralysis preceded the blindness by four weeks; and this was remarkable, as the condition of the fundus indicated an advanced stage of the affection. He thought the fit was probably due to some disease in the blood-vessels of the brain. The second case of this affection was a man, aged 53, formerly a soldier, who began to complain in September last of failing sight, bronchitis, breathlessness, and weakness, and afterwards of lumbar pain and frequent micturition. The vision had been steadily declining; and, on admission to the Eye Infirmary (December, 10th), he could only see with either eye No. 16 with + 16 glasses; his vision was best at the lower and outer part of the field. The urine had a specific gravity of 1012; it was albuminous, had a large deposit of pus, and a few tube-casts were found with difficulty in this sediment. The left optic disc was obscured, and could only be judged of by the convergence of the vessels; numerous hæmorrhagic spots or streaks were observed throughout the fundus, associated with characteristic white punctate deposits, chiefly in the neighbourhood of the macula. The retinal vessels, especially the arteries, were diminished in calibre, and their course was obscured at certain points in the neighbourhood of the disc. In the right eye, the site of the disc was occupied by a streaky hæmorrhagic patch, with similar spots distributed in a radiating direction. A number of white spots larger and more isolated than in the other eye, were observed below and outside the disc. The retinal vessels were nearly normal in size in this eye. Dr Reid said this last case represented what was usually regarded as the first stage of the retinal affection of Bright's disease, viz., congestion and hæmorrhage; the dimness of vision was greater than is usually observed in such cases, this being due probably to the locality of the hæmorrhages and to the general congestion—a view supported by the improvement which had taken place under observation. The extremely insidious character of this kidney affection was well shown by dimness of vision being often the earliest symptom of the disorder.

*Dr Renton* submitted the HEART OF A PIG with very marked vegetations



around the mitral orifice, and a distinct history of breathlessness before death.—It was referred for further investigation.

*Dr Gairdner* and *Dr Knox* brought up a detailed report on the cardiac points involved in a case of melanosis, shown to the Society in March, 1875.

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#### FOURTH MEETING, January 11th, 1876.

*Dr Maclaren* showed a patient, 40 years of age, a native of Scotland, with HYDATID TUMOUR ON THE LIVER, which, after being twice tapped, opened into the urinary passages, and discharged itself by the urethra. The fluid obtained from this cyst was of a dark brown colour; sp. gr., 1032; containing cholesterine crystals, blood corpuscles, and broken down cells. No hooklets or echinococci were found. The tumour was greatly diminished in size, but could still be felt attached to the liver. The patient was gradually regaining health and strength.

*Dr George Buchanan* showed a patient from whose foot he had EXCISED THE OS CALCIS, with the result of a perfectly useful foot with all the movements; he also presented the bone which had been excised.

*Dr Buchanan* also showed a patient, a man, on whom he had operated for CLEFT PALATE, by Langenbeck's method, with the result of perfect closure both of the hard and soft palate.

*Dr James Dunlop* presented an OVARIAN TUMOUR, removed by operation on January 5th. A preliminary tapping, on December 4th, had failed to empty the tumour, which continued prominent on both sides, although collapsed in the middle line. At the operation, this difficulty again occurred; and although the trocar was moved about freely within the cyst, only about a fourth part of the fluid came away, and the wound had to be enlarged and the hand introduced within the cyst to break down the septa. The fluid removed at the operation measured eighteen pints, and the tumour weighed eleven pounds. The fluid was of a gelatinous consistence. The minor cysts varied from the size of a pin's head to that of a closed fist. No trace of a Fallopien tube appeared on the outside of the tumour. The operation was performed under an antiseptic spray; the pedicle was ligatured temporarily with whipcord, and then with catgut ligatures in two divisions, a third catgut ligature being added around the whole, and the pedicle was then dropped back. The patient did well for a day or two, but died on January 9th. At the inspection, half a pint of reddish fluid was found in the pelvis; the pedicle did not present any appearance of violent inflammatory disturbance; the ligatures were slightly coated with lymph.

*Dr Gairdner*, in introducing a characteristic specimen of a PAROVARIAN

CYST, made some introductory remarks on the distinctive peculiarities of these cysts, as described in the fifteenth volume of the *Obstetrical Transactions*, (London, 1874, p. 105). The present specimen was very remarkable, in respect of the history, which, taken in conjunction with the *post-mortem* examination, showed that a unilocular cyst which had at one time filled a large part of the abdominal cavity, had undergone rupture (probably by sudden violence), with collapse of the cyst, but without peritonitis: or, at least, without such peritonitis, as to leave appreciable changes corresponding with the date of the rupture. The details are too long for insertion here, but the account of the sudden disappearance of a large abdominal tumour, with sensation of something giving way in the abdomen, and with a greatly increased flow of urine, extending over about a week, was very distinctly made out during life, and death occurring from Bright's disease about sixteen months afterwards, an opportunity was afforded of procuring the specimen now presented to the Society. This was a flaccid and completely empty unilocular cyst, which, even as removed from the body, could be inflated easily to the size of a child's head, but which, from the corrugated condition of its lining membrane, showed that it had at one time been very much larger. The seat of the former rupture was easily discovered on careful inspection by Dr Joseph Coats; but the curious point was that, although the opening had healed up so completely as to resist all ordinary force in inflation, there was not the slightest appearance of refilling of the cyst. Both kidneys presented an appreciable degree of hydronephrosis, or dilatation of the pelvis, probably due to the pressure of the cyst at a certain stage of its growth on the ureters; and it seemed not improbable that the profuse flow of urine, which is said to have followed immediately after the symptoms of rupture of the cyst may have been due, in part at least, to the relief of this condition. Instances of the subsistence and cure of unilocular cysts of this kind, after tapping, are probably not very rare; but the above is the only instance that Dr Gairdner has been able to find in which spontaneous collapse by rupture has taken place, without either peritonitis or refilling of the cyst, the facts being demonstrated by *post-mortem* examination on death occurring from another disease.

*Dr Hector C. Cameron* showed a plaster cast from a case of HERNIA CEREBRI, on which he had operated with advantage.

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#### FIFTH MEETING, January 11th, 1876.

*Dr Gairdner* presented an unusual, if not unique, illustration of ANEURISMAL DISEASE, in which a tumour was found in close contact with the heart, indeed, dissecting the visceral layer of the pericardium from the muscular wall of the right ventricle, there being, in addition, complete and firm pericardial adhesions, with a considerable amount of bulging or

pressure of the aneurism towards the right auriculo-ventricular orifice, and an opening by recent rupture into the right auricle. A mediastinal tumour of some kind was obscurely diagnosticated, but there were no special signs of aneurism. Orthopnoea, without much acceleration of the breathing, and ultimately dropsy and lividity, were the principal symptoms. The expansion of the right lung was much interfered with, but no direct pressure was exerted on the bronchus. Notwithstanding the obvious physical impediment to the action of the right ventricle, there was no murmur; and the contractions of the heart were maintained with tolerable regularity up to the very moment of death, the radial pulses, however, becoming very feeble. Beyond this, the diagnosis presented nothing very striking. The relations of the aneurism in detail, as discovered after death, were of such a complicated character as to be difficult to describe briefly. A primary sac was connected with the posterior and right lateral wall of the arch of the aorta, by an opening, about two inches in diameter, midway between the valves and the origin of the great arterial branches, this sac lying above and rather in front of the right auricle, and closely adherent to a portion of the right lung, but not so as obviously to compress its main bronchus, or to involve any of the great nerve-trunks. A wall of firm clot partially separated the sac now indicated from what at first appeared to be another, but which might also be regarded as a second or more remote compartment of the same sac; this secondary portion lying directly in front of the right auricle, and obviously compressing and circumscribing the capacity of both the auricle and the ventricle. When this sac was artificially distended in the preparation, the auriculo-ventricular orifice was almost flattened by it. A ragged rupture through the endocardium into the auricle was found immediately above and in front of the tricuspid ring, the edges appearing to be those of a quite recent tear. A third compartment, or almost separate sac from the two preceding, existed behind and to the right of the posterior wall of the right ventricle, and between it and the visceral pericardium, which at this part was so thin that nothing but the firm adhesions above indicated could have prevented the rupture of the aneurism into the pericardial sac. This third compartment, or aneurismal sac, extended almost from the base posteriorly to the apex of the right ventricle; and its connection with the second compartment was at first difficult to make out, but afterwards became apparent in the form of a small and tortuous opening through a quantity of laminated and decolorised clot, which formed, as it were, the floor of the second compartment. In the distal, or third compartment, were found neither recent soft blood clot nor laminated and decolorised fibrine, but a quantity of loose soft *debris* having the purplish yellow opaque appearance proper to softened thrombi, and so often witnessed in connection with the internal softening of those cardiac blood concretions called by Laeuncc "globular polypi of the heart."

*Dr Gairdner* showed a small ANEURISM arising from an arteriole in the lung, in connection with a phthisical cavity, giving rise to repeated and ultimately fatal hæmoptysis. He referred to a series of similar instances collected by Dr R. Douglas Powell, in the twenty-second volume of the *Pathological Transactions* of London. This particular form of hæmoptysis takes place only in cases in which a branch of the pulmonary artery remains unoccluded in near approximation to the wall of a chronic excavation, and in which fatty degeneration or softening of the arterial coats takes place *ab extra*, thus leading to protrusion of the inner or middle coat at the point of diminished resistance. The aneurism, therefore, projects towards or into the cavity, and ultimately gives way, generally with fatal effect. In the present case, the patient, a labourer, aged 23, had been obviously phthisical for three winters, but with intermissions or marked remissions in the symptoms. Signs of cavity were evidently present in the right upper lobe, and hæmoptysis took place for the first time about six weeks before death. It seemed to be controlled for a time, by hypodermic injections of ergotine, and by turpentine given internally, but was renewed after an interval, and produced sudden death.

*Dr Renton* showed the HEART OF A PIG, which had been sent to him from the country, with a curious history. A person affected with heart-disease conceived the idea of examining the valves of the heart in a pig, so as to understand somewhat the nature of his own complaint. He further became anxious to find some illustration of diseased valves as well as of the normal structures; and for this purpose the hearts of many pigs were examined, but without result, until at last one animal, which had been observed to be very breathless and to have some blueness of the ears, was killed, in the expectation of finding some cardiac lesion. Enormous vegetations were found all around the mitral orifice in the organ now shown. On further inquiry, it was learned that the pig (which was not specially fat) had had two attacks of illness, in which it seemed to suffer much pain, before the breathlessness became developed.

*Mr McCall*, of the Veterinary College, said he had examined the heart, which presented an appearance such as he had never before seen in the pig. Veterinary surgeons, however, were but seldom consulted on the diseases of swine, unless when the deaths amongst them were numerous. Pigs, however, like horses, cattle, and dogs, were not unfrequently the subjects of rheumatism, and he believed the vegetations in the present case to be of rheumatic origin.

*Dr Gairdner* showed an enormous AORTIC ANEURISM.

*Dr Cameron* showed a leg amputated for EPITHELIOMA appearing on an old cicatrix.

*Dr Knox* showed a specimen of CALCIFIED PERICARDIUM obtained in the dissecting-room ; also a dissection of a horse-shoe kidney.

*Dr Cameron* showed a patient, from whom he had removed one lateral half of the tongue.

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SIXTH MEETING, February 8th, 1876.

*Dr Reid* showed the patient presented on December 14 with OPTIC NEURITIS. Improvement had gone on steadily since then, so that she was now able to read No. 1 with either eye, with this difference in the right, that objects required to be held 30° towards the right side. The white lines which had been seen to accompany the arteries were becoming less distinct, and the optic nerves assuming a more healthy aspect. With the exception of occasional headaches, the child was in good health. The treatment consisted of rest and the administration of the iodide and bromide of potassium, with an occasional purgative.

*Dr Reid* also showed a typical case of SYMPATHETIC IRITIS, in which he proposed to enucleate.

*Dr Yellowlees* showed a large RENAL CALCULUS, and Professor Young sent several Hunterian preparations in illustration of this subject.

*Dr Finlayson* presented a boy, æt. 12 years, who had well-marked APHASIA, ushered in by unilateral convulsions, followed immediately thereafter by right hemiplegia, about eighteen months ago ; this occurred in the midst of scarlatinal dropsy. Considerable improvement in every respect had of late taken place, and the child could now name most common objects shown to him, and by means of *single* words, assisted with gestures, he could usually express himself intelligibly. He could also write his name with his left hand, although he did not know the letters of the alphabet by name. This was clearly due to special instruction in imitating a copy of his name set to him by his friends. He had before his illness been a good scholar for his age. He could also sing *a little* several songs, and the members of the Society had an opportunity of noticing that in this way he put several words together, although he filled up the tune with simple sounds. According to his mother, it was by means of singing that he began to pick up a few words after his illness. *Dr Finlayson* pointed out the anomalous condition of this boy's powers of speech and writing, as being due to a process of education going on *de novo*, apart from all his previous school education, and resembling in many respects that of a young child learning to speak and name objects ; many illustrations of this had been noticed since his admission to the Infirmary.

*Dr Joseph Coats* thought that in a young subject, in whom the brain substance was still undergoing important changes, considerable hope might be entertained of educating the right side of the brain, as it were, so as to compensate for the mischief done to the left.

*Dr Joseph Coats* showed a LIVER from a SYPHILITIC case. He pointed out that there were two conditions present referable to syphilis—namely, amyloid degeneration and syphilitic gummata. The amyloid degeneration was general throughout the liver, hardly any hepatic tissue remaining unaltered. The gummata were mostly of small size, but one was as large as a hazel nut. They presented the usual cheesy appearance.

*Dr David Foulis* showed microscopic sections of an artery ligatured in its continuity with carbolized silk. We hope to give further particulars in our next number.

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## THE GLASGOW AND WEST OF SCOTLAND MEDICAL ASSOCIATION.

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### ANNUAL MEETING.

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The annual meeting of the members of the Association, as convened by printed circular, was held in the Faculty Hall, 242 St Vincent Street, on January 14th, 1876, at 4 P.M. The President, Dr Allen Thomson, occupied the chair. There was a good attendance of members.

The General Business Secretary, Dr G. P. Tennent, stated that the membership of the Association number 274, and that the affairs of the Association were otherwise in a flourishing condition.

The Treasurer, Dr John Wilson, intimated that after all the expenses of the year had been fully discharged, there would be upwards of £127 belonging to the Association.

The Editorial Secretary, Mr Henry E. Clark, then read the

#### REPORT OF THE EDITORIAL COMMITTEE.

“The Committee are glad to be able to report that during the past year there has been no lack of literary material, and that, as a consequence, there has been little or no delay in the publication of the *Journal*. The January number was delayed in consequence of changes in the printers’ establishment, and did not appear till the end of February. The April number was published on the 7th of that month. The July one appeared on June 30th; and the October one about October 12th—the delay in this case being due to the absence of the Editorial Secretary from Glasgow.

We may further add, that the number for January, 1876, was published, and delivered to town subscribers on December 31st, thus making the *fifth* number published within the year 1875.

“The contract with Messrs Dunn & Wright is maintained at the same price as for the past two years, but they engage to cut the whole of the edges, and to issue the *Journal* promptly on the days prescribed. The Editorial Secretary is at present making arrangements for the improvement of the cover, and the Committee trust that before the end of the year the appearance of the *Journal* will leave little to be desired.”

The Business Committee recommended to the Association that Mr Henry E. Clark should receive £30 in recognition of his services, as Editorial Secretary, and this was passed unanimously by the meeting.

The Committee also recommended that Dr William Macewen should be appointed General Business Secretary, in place of Dr Tennent, who had tendered his resignation. This was also unanimously agreed to.

The Office-Bearers for the year 1876 were then elected, the following being the list:—

*President*—Professor ALLEN THOMSON.

*Vice-Presidents*—Dr R. SCOTT ORR and Dr J. B. RUSSELL.

*Treasurer*—Dr JOHN WILSON, 2 Eton Gardens, Hillhead.

*Editorial Secretary*—Mr HENRY E. CLARK, 9 Elmbank Street.

*General Business Secretary*—Dr WILLIAM MACEWEN, 73 Bath Street.

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*Business Committee.*

PRESIDENT,  
VICE-PRESIDENTS,  
TREASURER,  
SECRETARIES,  
Dr W. T. GAIRDNER,  
Dr J. B. COWAN,

Dr FINLAYSON.  
Dr PERRY.  
Dr A. WOOD SMITH.  
Dr YELLOWLEES.  
Dr H. C. CAMERON.  
Dr TENNENT.

The meeting concluded with a vote of thanks to the President, Dr Allen Thomson, for presiding.

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## Obituary.

### MR JAMES HINTON.

ON the 16th of December, 1875, at St Michaels, Azores, there passed away from our midst James Hinton, one of the most original and subtle thinkers, as he was the most accomplished aural surgeon, of these times. It is not our intention, however, in this *Journal* to speak of the deceased as a philosophic thinker of unusual acuteness, or as a philanthropist, great though his influence was in these respects. To those who had the rare privilege of receiving the loving friendship of James Hinton, it is hardly needful to recall how perfectly he realised and nobly lived his own ideal-

life of utter and complete self-sacrifice; how he chose, child-like, to be led by nature's promptings, and in humbleness of spirit trusted "God to make the way clear." Here we would rather speak of him as an aural surgeon of matchless talent and acknowledged eminence.

The subject of this brief notice came to London while quite a youth, with his father, who was the eloquent preacher and incumbent of the Devonshire Square Chapel. Young Hinton began life in the lowly position of cash-boy to a linen draper in Whitechapel, then, as now, the abode of a rough and unsavoury class of people; but he did not remain long here, for, as he once explained to the writer, "he had no head for figures." After spending a short time in an office in the city, where this defect again made itself apparent, in the number of returned letters of a morning marked "wrong address," he was introduced to the family of a surgeon in the Borough, and in this way became enamoured of the study of medicine. But all this time, still a mere youth, he was thinking by day and dreaming by night of social and moral reforms; seeing also, as well as thinking and dreaming; indeed, in latter life he was a seer in all respects.

The experience of his youthful days in Whitechapel remained to him to the last as a loving and fragrant memory, because, there, in witnessing the scenes of misery and the sufferings of the poor, his philosophy as a system had its birth. *Apropos* of this love for the east end of London, he told the writer (on a happy and memorable evening spent with him alone just before he left England), "that although his body was born in Reading, his soul had birth in Whitechapel."

After studying and passing his examination for the diploma of Membership of the College of Surgeons in 1848, he spent some time in visiting foreign countries in medical charge of colonial trading vessels, settling down in London after a year or two in Charterhouse Square, where, as he expressed it, "he had to visit and give a bottle of physic for half-a-crown, and didn't get the half-crown!" This kind of work could not supply the needs of a young family, and must have been intolerable drudgery to one who, although *in* the profession, was not of it; indeed, his heart never was in it, although, whatever he undertook to do, he did with all his heart, and in professional matters carried them out with a thoroughness and energy hardly to be equalled and never surpassed. This being the state of matters as regarded his practice, he decided to give it up, and to devote himself to more congenial work. With this object in view, he retired to the country to mature his thoughts and to write upon his favourite philosophy. From this retreat for a period of four years he seldom emerged; the outside world had no power to seduce a man of his form of mind from this self-imposed seclusion. Blessed with health of body and a happy disposition, surrounded by his young family, and having the companionship and tender care of one whose sympathies vibrated in unison with his own, these days passed profitably and happily away. From time to time he showed that in this retreat he was not a dreamy idler; besides frequent and valuable contributions to the magazines of the day, he wrote "Man and his Dwelling Place," the work by which he will be best known as an original thinker and acute reasoner. Some time later, he published "Life in Nature" and "The Mystery of Pain." After four years' retirement he returned to professional life, at the earnest request of several influential members of the profession in London; this time to accept the office of "aural surgeon to Guy's," an office then first created, and which he occupied for fifteen years. In this new sphere he laboured with the greatest diligence, giving all the powers and undivided attention of a well-trained and disciplined mind to the mastery of the subject of diseases of the ear. As an evidence of his diligence, it may be



stated that there are carefully-recorded notes of 500 *post mortems* of cases of ear disease, made by his own hands, in these early years of his career as an aural surgeon. Henceforth his progress was steadily onward, till in the well-known house in Savile Row, in which Toynbee laboured and died (and whom he succeeded), Hinton was honoured by the profession, recognised as the representative of English Aural Surgery, and consulted by the largest aural clientèle in this country, or indeed in any other country.

The winter session of the Medical School at Guy's was opened in 1873 by him. His address on that occasion, entitled "The Place of the Physician," is a most thoughtful and suggestive one, and well worthy of being read and re-read and studied even by every member of our profession. No wonder that it was listened to in breathless silence, its matter, the impressiveness of its delivery, and enthusiasm of the speaker, were alike calculated to awe the more turbulent spirits of such an assemblage.

In March, 1874, he bade farewell to practice, and finally retired, again to devote himself to his favourite studies. As a parting gift to the profession, he issued two valuable works, "The Questions of Aural Surgery," and "An Atlas of the Membrana Tympani." These works embody his own wide and varied experience in the specialty which he so well represented. In them he appears to great advantage, as the sound clinician and an original observer.

These works must keep his name alive as a scientific aural surgeon, while his philosophic writings will not permit his influence, as a metaphysician, to die out. Indeed, though dead he speaketh still, and will continue to speak.\*

Whether his influence survives in the future as an eminent aural surgeon, or as an acutemetaphysician, matters not; it is enough that it cannot die; for he worked and died for "Other's Needs."

#### BOOKS, PAMPHLETS, ETC., RECEIVED.

Reports on certain Recent Outbreaks of Enteric Fever in Glasgow. By James B. Russell, B.A., M.D., Medical Officer of Health for Glasgow. 1875.

Posological and Therapeutic Tables, containing the Doses, Actions, and uses of the Medicines in the British Pharmacopœia; with Poisons. By Alexander Henry, M.B. Edinburgh: Maclachlan & Stewart. 1875.

Note-Book of Materia Medica, Pharmacology and Therapeutics. By R. E. Scoresby Jackson, M.D. Third Edition. Revised and Enlarged by Dr Angus Macdonald, M.A., F.R.S.E. Edinburgh: Maclachlan & Stewart. 1875.

Quain's Elements of Anatomy. Eighth Edition. Edited by W. H. Sharpey, M.D., Allen Thomson, M.D., and Edward Albert Schäfer. Vol. I. Longmans & Co. 1876.

Aids to Anatomy. By George Brown, M.R.C.S., &c. London: Bailliere, Tindall & Cox. 1876.

\* In the April No. of the *Contemporary Review*, a valuable Paper on the "Bases of Morals," from his pen, is to appear.

- The Cholera Epidemic of 1873 in the United States—Official Report to Senate and House of Representatives. Washington. 1875.
- Lectures on State Medicine, delivered before the Society of Apothecaries, at their Hall in Blackfriars, May and June, 1875. By F. S. B. François de Chaumont, M.D., F.R.C.S.E., Conjoint Professor of Military Hygiene, Army Medical School, Netley. London: Smith, Elder & Co. 1875.
- The West Riding Lunatic Asylum Medical Reports. Edited by J. Crichton Browne, M.D., F.R.S.E. Vol. V. London: Smith, Elder & Co. 1875.
- Elements of Human Physiology. By D. L. Hermann, Professor of Physiology in the University of Zurich. Translated from the fifth German Edition, by Arthur Gamgee, M.D., F.R.S., Brackenbury, Professor of Physiology and Histology, in the Owens College, Manchester. London: Smith, Elder & Co. 1875.
- The Geographical Distribution of Heart Disease and Dropsy, Cancer in Females, and Phthisis in Females, in England and Wales. Illustrated by six small and three large coloured maps. By Alfred Haviland, M.R.C.S.E., Medical Officer of Health to the Combined Sanitary Authorities in the Counties of Northampton, Leicester, Rutland, and Bucks. London: Smith, Elder & Co. 1875.
- Annual Reports on Diseases of the Chest, under the direction of Horace Dobell, M.D., &c.; Chief Assistant Editors, Adolphe Wahlteuch, M.D., and R. Shingleton Smith, M.D. Vol. I. June 1st, 1874, to June 1st, 1875. London: Smith, Elder & Co. 1875.
- The Retrospect of Medicine. Edited by W. Braithwaite, M.D., and James Braithwaite, M.D., London. Vol. LXXI. July—December, 1875. London: Simpkin, Marshall & Co. 1875.
- Respiration; or Why do we Breathe? A lecture delivered before a popular audience. By Patrick Black, M.D. London: Smith, Elder & Co. 1876.
- On the Cause of Vice-President Wilson's Death. By William A. Hammond, M.D. Reprinted from the *Boston Medical and Surgical Journal*, December 16th, 1875.
- On Pigmentary Deposits in the Brain, resulting from Malarial Poisoning. By William A. Hammond, M.D. Reprinted from the *Transactions of the American Neurological Society*. 1875.
- The Cause of the Commencement of Parturition. By Charles M. Crombie, M.B., M.C. London: J. & A. Churchill. 1875.
- Medical and Surgical Examination Questions. Arranged by H. Aubrey Husband, M.B., &c. New Edition. London: Longman's, Green & Co. 1876.
- The Natural History and Relations of Pneumonia, a Clinical Study. By Octavius Sturges, M.D., F.R.C.P. London: Smith, Elder & Co. 1876.
- A Criticism of Esmarch's Elastic Compression. Founded on an experience chiefly of Amputations. By Rushton Parker, F.R.C.S., M.B. London. 1875.
- On the Extirpation of Enlarged Lymphatic Glands. By Rushton Parker, F.R.C.S., M.B. Liverpool. 1873.

THE  
GLASGOW MEDICAL JOURNAL.

July, 1876.

Original Articles.

I.—LECTURES ON CLINICAL MEDICINE.

By Dr M-CALL ANDERSON, *Professor of Clinical Medicine in the University of Glasgow.*

III.—ANEURISM OF THE ABDOMINAL AORTA.

*Concluded from Page 152.*

GENTLEMEN,—There are several diseases which may be mistaken for Abdominal Aortic Aneurism. Let us, in the first place, take simple (1) *Aortic pulsation*. Now, you might very naturally suppose, as I myself once did, that nothing could be easier than to distinguish it from Aneurism. The following cases, however, will dispel that illusion. “A man, aged about 30,” says Walshe\* “was sent to University College Hospital by Siordet, for an opinion on the nature of the epigastric pulsation under which he suffered. So nearly balanced was the evidence, that I did not venture to pronounce an opinion in one direction or the other. Now the inclination of that evidence, such as it was, told rather for dynamic than structural disease; yet, in about eighteen months later, the patient came under my notice within a week or so of his death from one of the largest

\* A Practical Treatise on Diseases of the Heart and Great Vessels, by Walter Hayle Walshe, M.D. Fourth Edition, p. 467. Smith, Elder & Co., London, 1873.

aneurismal sacs I have seen. *Per contra*, there is a case in the hospital books, in which after very careful and repeated examinations, the diagnosis of incipient aneurism of the vessel was set down in dubitative fashion, with a note of interrogation; and though the symptoms greatly improved under the rest and medical appliances of the hospital, they never did so in a sufficiently positive manner to induce me to modify the diagnosis into one of simple pulsation. Now, this woman was killed by a street accident, two years later; and her aorta, though somewhat thin and atheromatous, proved to be wholly free from dilatation." I have myself met with several cases in which the diagnosis was doubtful, and have at present under observation a patient with regard to whom there is much difference of opinion, although I am in favour of the aneurismal view, principally because the temperature of the left lower extremity is felt by the patient, and found by the thermometer, to be somewhat lower than that of the right.

This lowering of the temperature, which may or may not be associated with retardation of the pulse, or with œdema, and which may involve one or both lower extremities, (though absent in our patient,) is common in aneurism, but never occurs in aortic pulsation, and is therefore often of great service in clearing up the diagnosis. When the aneurism is situated in the epigastric region it may cause some displacement of the heart, as in the present case, whereas aortic pulsation cannot possibly do so. The sex of our patient, too, is of some assistance, aneurism being most common in males, aortic pulsation in females, although the exceptions to this rule are not uncommon. Again, in this patient the pulsation is slow, heaving, and laboured, while in aortic pulsation it is more active and bounding. There is also a distinct tumour to be felt with dulness upon percussion over it, and it is the seat of expansion as well as pulsation, whereas in simple aortic pulsation there is no dulness upon percussion and no tumour, although often a deceptive feeling of swelling, which, however, disappears if the patient is put under the influence of chloroform; and there is either no expansive movement or only to a trifling degree. The presence of atrophy of a testicle, or of symptoms of passive congestion of the kidney, due to causes

already mentioned, point very distinctly to aneurism, but their absence gives us no information at all. And lastly, our patient complained much of pain, which is one of the most striking symptoms of aneurism in many cases, and is often terribly severe, whereas in aortic pulsation there is often uneasiness, but never severe pain.

(2) It sometimes happens that *aortic pulsation is complicated with the presence of a tumour lying upon and compressing the vessel* more or less. In that case most of the direct symptoms of aneurism are present, for in addition to the presence of a swelling in the situation of the aorta, there is pulsation communicated to the tumour from the artery, and the former, by compressing the latter and diminishing its calibre, is apt to lead to the production of a murmur. It is said that in cases of aortic pulsation with tumour the pulsation and murmur cease by such a change of posture as removes the tumour for the time being from the aorta, but this test is not always reliable, because it often happens that in aneurism a murmur is heard when the patient is recumbent, which disappears when he sits up or stands, and not unfrequently there is no murmur to be heard in any posture whatever. Nor can we place much confidence in the presence of expansion as a sign of aneurism, because, although when very well marked it probably points to that disease, it is a deceptive symptom, and one which may be present to some extent in cases of tumour lying upon the aorta. An aneurismal tumour is usually oval or rounded, and is immoveably fixed to the spine, whereas tumours lying upon the aorta are generally of an irregular shape, and are more moveable, in the early stages at all events. Then the indirect or pressure symptoms, which need not be recapitulated, constitute, as a rule, much more marked features of aneurism than of tumour lying upon the aorta. But in many cases it is only by a careful study of the history of the case, and of the order of occurrence of the symptoms, that an opinion can be formed, and in some instances a certain diagnosis is impossible. Before leaving this subject, it may be remarked that the majority of such tumours are malignant, in which case the cachexia characteristic of malignant disease may be detected, or other tumours of a cancerous nature

may be discovered elsewhere; just as in cases of aneurism of the abdominal aorta, aneurisms may be detected in the chest or in the superficial vessels, and throw great light upon the diagnosis.

(3) The only other disease which might be mistaken for aneurism is *Psoas abscess* in its early stage. But aneurism usually occurs in healthy males, while abscess attacks delicate persons, and both sexes alike, and rigors and constitutional disturbance mark its course. An aneurism of the abdominal aorta may be complicated with aneurism elsewhere, while psoas abscess is often associated with pulmonary consumption or some other form of strumous disease. An aneurism is firm and oval or rounded in shape, abscess is soft and elongated from above downwards. In the former there is pulsation, and expansion, and often murmur, in the latter these symptoms are wanting. In aneurism pain is one of the most constant and striking symptoms, while in abscess, contrary, perhaps, to what you might expect, there is little pain experienced as a rule. And, finally, tenderness and even prominence of a portion of the spine, and paralysis of the lower extremities, owing to implication of the spinal cord, are not uncommon in abscess, while in aneurism they are rare, although not invariably absent.

In the TREATMENT of our patient, the first and paramount indication is to secure absolute and uninterrupted repose in bed, as our aim is to calm down the circulation, and to favour the deposit upon the walls of the sac of successive layers of fibrine. The fulfilling of this indication may appear a very simple matter, and so it is for a short time after admission, but after a while it is felt to be irksome, and as the pain subsides the patient does not see the necessity for continuing to observe it rigidly. It is therefore advisable at the outset to take the patient into our confidence, and to explain to him the uselessness of our attempting to cure him unless he is prepared to maintain the recumbent posture uninterruptedly for two or three months. He must not be permitted to sit up at all, although he may be allowed from time to time to roll gently over from his back to one or other side. His bowels require to be carefully attended to, not only with the view of preventing digestive derangement, which is

so apt to ensue when a patient, accustomed to active exercise, is kept in bed, but also to prevent the slightest degree of straining at stool which is apt to excite the circulation. In addition to this, we are administering iodide of potassium, in doses of half a drachm, three times a day, a remedy which has deservedly acquired a reputation for the cure of aneurism of late years, although no satisfactory explanation of its *modus operandi* has yet been given. Its beneficial influence may, however, be due in part to its powerful diuretic action, thus diminishing the amount of water in the blood. For the first few nights we gave him a full opiate, as recommended by Dr Balfour, with the view of preventing the occurrence of coryza. When we examined him together the other day I pointed out to you an eruption upon his back of an acne-like character, this and coryza being very usually results of the administration of iodide of potassium, and constituting what is termed the phenomena of iodism.

If, after a few trials of this treatment, no decided improvement takes place, we may perhaps resort to the method recommended by Mr Jolliffe Tufnell, and which, in his hands, has yielded very excellent results.\* This consists in the combination of absolute rest with a very restricted diet. The diet recommended by Mr Tufnell is as follows:—"For breakfast, two ounces of white bread and butter, with two ounces of cocoa or milk. For dinner, three ounces of broiled or boiled meat, with three ounces of potatoes or bread, and four ounces of water or light claret. For supper, two ounces of bread and butter, and two ounces of milk or tea, making in the aggregate ten ounces of solid and eight ounces of fluid food in the 24 hours, and *no more*." If thirst is urgent it may be relieved by holding a pebble in the mouth to favour the flow of saliva, or by sucking a small piece of ice from time to time. The object of this dietary is to diminish the amount of water and of red corpuscles in the blood, and to produce a proportionate increase of the coagulable fibrine. The cases which are recorded in Mr Tufnell's pamphlet are very encouraging

\* "The Successful Treatment of Internal Aneurism by Consolidation of the Contents of the Sac." Sec. Ed., 1875. J. & A. Churchill, London.

indeed, and I can cordially recommend you to peruse them for yourselves.

Or, instead of this, we may resort to the treatment by pressure, which acts in the same manner as the ligature in aneurisms of superficial vessels, namely, by causing stagnation, and consequent coagulation of the blood contained in the sac. This treatment, as applied to internal aneurisms, was first successfully carried into practice by my friend, Dr Wm. Murray, of Newcastle. The following is a short outline of the case:—The patient was a spare man, 26 years of age, who frequently, in using a large wooden rammer for driving paving stones into the ground, overreached himself, and subjected the trunk of his body to severe straining. Eleven months before admission, after a hard day's work, he was seized somewhat suddenly with severe pain in the back of a gnawing character, and preventing movement. Two months later the same pain began to be felt very severely in the abdomen, catching his breath during inspiration. Seven months after that he began to feel a slight pulsation in the belly; two months later he was admitted into the Newcastle Dispensary under the care of Dr Murray. An aneurismal tumour, the size of a very large orange, was then discovered, extending from about two inches to the left to about one inch to the right of the umbilicus, and upwards to within three inches of the margin of the left lower ribs. When pressure was made on the aorta above it all pulsation ceased, and when the pressure was removed a distinct thrill was felt to accompany the rush of blood into the tumour. All palliative treatment having failed to relieve him he was put under chloroform, and a tourniquet applied for two hours above the aneurism, which completely arrested the pulsation in the aneurism and in the vessels of the lower extremities, except during momentary displacements of the instrument, but on removing the pressure no visible effect had been produced. Three days later the operation was repeated and continued for five hours, and during the last hour all movement and pulsation were completely arrested. On removing the pressure only very slight pulsation was felt, and by the evening it had quite disappeared. Six years afterwards the patient died suddenly from rupture of an aneurismal dilatation situated



higher up than the original one. The aorta below it was completely occluded, and its walls atrophied.\* Encouraged by the success of the treatment in this case, numerous trials have been made of the pressure treatment by other observers, and successful cases have been reported by Moxon, Mapother, Heath, Holden, Lawson, Russell, and others.

In our case the aneurism springs from the upper part of the abdominal aorta, so that pressure upon the proximal side of the vessel is impossible. The tourniquet will require, therefore, to be applied to the aorta upon the distal side of the aneurism, by which means consolidation of the contents of the sac may also be produced, as in a case recorded by Bryant, although in it, unfortunately, the patient died from injury to the intestine. The patient was 30 years of age. The tourniquet was applied for 12 hours under chloroform, and the pressure was then discontinued for 12 hours, and afterwards repeated for 4 hours more. The patient died 11 hours afterwards, and at the *post-mortem* examination the aneurism was found to be consolidated, but the intestines had been damaged by the pressure, and peritonitis had been set up. Should the distal compression of the aorta be resorted to in the present case, I shall probably combine with it the use of tincture of veratrum viride, in doses of from 5 to 15 minims three times a day, with the view of calming down the action of the heart, as I have found it of some service in the treatment of aneurism of the thoracic aorta, along with other measures.

\* Abridged from Dr Wm. Murray's pamphlet on "The Rapid Cure of Aneurism by Pressure." J. & A. Churchill, London, 1871.

## II.—A SECOND CASE OF PEMPHIGUS CHRONICUS.

By R. SCOTT ORR, M.D., F.R.C.S.E., *Physician to the Glasgow Royal Infirmary.*

IN the number of this *Journal* for October, 1858, will be found a case of Chronic Pemphigus, related by the late Dr Joseph Bell, together with a great amount of valuable information regarding this singular and rather rare disease. In the number of the same *Journal* for July, 1863, I have recorded a very similar case. Hebra estimates that during a period of upwards of twenty years, out of a total of 25,000 patients annually, he has not seen more than between forty and fifty cases of pemphigus in the General Hospital at Vienna, and from enquiries made at that hospital, the Lying-in Hospital, and the Foundling Hospital, there was found to be one case in 10,000 adult patients, and one in 700 infants at the breast. His whole experience both in public and private practice is founded on the examination and treatment of not more than a hundred cases.

These facts, justify me in simply recording the following case, which is an example of a rare form of pemphigus.

John J., aged 40, a married man, a moulder by trade, was admitted into the Glasgow Royal Infirmary, on the 27th of Sept., 1875. He stated that three weeks previous to his admission an eruption appeared on his neck, arms and legs, very much in the order now stated. This eruption was distinctly vesicular. The vesicles or bullæ began without any inflamed base, and as they gradually enlarged became surrounded with an inflamed circumference. Most of them were about the size of a threepenny piece, but some of them might be as large as the thumb nail. They swelled up gradually, then burst and discharged a thin lymphic fluid, and healed by the formation of a reddish scab. On the arms they covered the most of the front and inside of the forearms; on the legs, they affected chiefly the inside of the thighs, and even on the penis a few were observed. The patient confessed to having had syphilis about twenty years before. The glands in the groin, and also the occipital glands were enlarged. He was a married man and the father of one

child, a healthy little girl, three or four years old. He slept badly from smarting pain in the thighs, and at the angles of the mouth. The bowels were regular. Tongue clean; appetite good. He was ordered the following medicine:—

R. Hydrarg. c̄cret. gr. xii.  
 Pulv. rhei. gr. xxiv.  
 Sodæ bicarb. ʒij.  
 Div. in part. xii.

Sig. One night and morning.

And on September 30, this mixture was prescribed—

R. Quin. sulph. ʒi.  
 Acid. sulph. arom. ʒij.  
 Aquæ font. ad. ʒij.

Sig. A teaspoonful three times daily.

October 20.—The report is as follows:—"Patient has steadily improved since the 10th of the month, when all the vesicles had disappeared, except a few on the right ankle. There is some swelling of the ankles, but the urine is found to be quite normal." A warm bath was ordered and the citrate of quinine and iron. On the 1st of November there was a slight return of the vesicles on the foot and legs, for which he was ordered to resume the alterative powders, and on the 6th of November he was dismissed cured.

December 8.—He was re-admitted, and stated that he had continued in good health and at work in the foundry since his dismissal, the eruption having entirely disappeared, until the 2nd of the month, when the disease returned, compelling him to give up his work, and two days afterwards large patches of the skin filled with water, resembling large burns, which broke and discharged fluid having a very offensive odour.

On his admission he presented a most haggard, cachectic appearance. Large portions of the cuticle were detached from the limbs and trunk, and the raw surfaces exuded an ichorous fluid, emitting a disagreeable acid smell. There were also several patches on the forehead and sides of the neck. Countenance pale and anæmic. Pulse 128, small and weak. Tongue pretty clean. Bowels reported regular. Tincture of the per-

chloride of iron, with lemon juice, and good nourishing diet were ordered.

December 11.—“A copious discharge of most offensive fluid has continued to exude from the abraded surfaces since last report, but to-day is diminishing in quantity, and in many places the raw surfaces are drying up and being covered with scabs. Otherwise patient continues as before, excepting that last night he was attacked with severe diarrhoea. Pulse 104, very weak. Tongue furred.” The iron and lemon juice were omitted, a liberal allowance of port wine ordered, and the abraded surfaces were anointed with olive oil.

December 16.—“Diarrhoea somewhat abated, but still continues, especially after food. Discharge of serum is almost entirely stopped, and abraded surfaces are dry and covered with dark brown bloody scabs. Complains less of pain, and can move his limbs more easily. Some diaphoresis yesterday and to-day. Pulse 124, decidedly stronger. Tongue raw, cracked, and sore. Much thirst.” These signs of improvement were only transient, for next day it was too evident that he was sinking fast, and death soon put an end to his sufferings.

Although the *post mortem* examination revealed no disease of any consequence in any of the internal organs, I think it right to annex the report of it, kindly furnished to me by Dr Foulis, the pathologist to the Infirmary. It was performed on the 22nd of December, five days after death:—

“*Autopsy*.—Body rather emaciated. Surface of trunk, both back and front, arms, shoulders, thighs, legs, dorsum of feet, and corners of the mouth, thickly set with brown and yellow irregular or rounded thin scabs of various sizes, in some places confluent. The skin under the scabs is in some instances eroded, in others it is of a pink colour, and puckered slightly, presenting the appearance of a recent scar. There appears to be little or no thickening of the skin below the scabs. Many of them are brown and dry, and with the skin on which they rest presents a semi-translucent area. “*Heart*.—Weighed 11 ounces. Its tissue is rather softer than usual; no valvular disease or dilatation. “*Lungs*.—Back part of both oedematous. Base of the left quite solid, grey in colour, soft and friable;

bronchial tubes full of thick, white, purulent plugs, and at one part the tissue is almost gangrenous. *Liver*.—Weighs 4 lbs. 3 ounces; pale, mottled, plum colour; presents the appearance of the amyloid liver, but gives no reaction with iodine. *Spleen*.—Normal. *Kidneys*.—Pale. *Supra-renal capsules*.—Brown, soft, disorganised; seemingly from *post mortem* change. Microscope shows no decided disease. *Bladder and Intestines*.—Healthy. *Brain*.—49½ ounces; normal.”

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### III.—ON A RECENT EXPERIENCE OF PUERPERAL FEVER.

By R. PARK, L.F.P.S.G., &c., Stewarton.

THERE are many points respecting the etiology of puerperal fever which remain to be cleared up. The part the busy country practitioner can play in throwing light upon them is almost entirely confined to the narration of cases and their environments; though, to him, all that science can tell respecting these fevers is perhaps of more vital importance than to many others in the profession. A recent experience affords me a melancholy opportunity of laying before the profession the following clinical record.

*Case I*.—Mrs A., æt. 30. Attended April 30th, 1874. Second labour. Labour easy—over within 18 hours—though preceded for some days by severe false pains. About 38 hours afterwards had severe rigor, and, on morning of third day, all the symptoms of puerperal peritonitis were present. *Previous to having the rigor, she had wearied herself by sitting up in bed and trying to get baby to suck.* Lactation continued, and the lochia flowed almost till the end. On May 4th (fifth day) tympanitis was excessive. May 5th, I had Dr Paxton, Kilmarnock, in consultation; and on May 6th (being the seventh day), she died.

The patient lived at one of the best farm steadings in this district, occupying a healthy situation. The only infectious or contagious cases I had under treatment at the time were one of diphtheria and two of smallpox. The husband at the time

was in Jersey in a dying state from phthisis, and no doubt her mind was, and had been, anxious and depressed concerning him.

I attended and delivered on the same day Mrs M<sup>c</sup>K., a primipara. I used forceps at the close of a prolonged labour. On the day following (May 1st) I attended Mrs L. (multipara), and both patients recovered without a bad symptom.

*Case II.*—Mrs H., æt. 27. Was called to see this woman on the seventeenth day of her illness, July 3rd, 1875, she having been attended in her confinement by the other practitioner of this place (Mr Caskie). The symptoms present at the time of my visit closely resembled those of puerperal typhus described by Ramsbotham. The *lochia continued*, but were offensive, though lactation had ceased. On the 5th a consultation was held with Dr Marshall, Kilmarnock, who verified my diagnosis and prognosis, and confirmed my treatment. On the 7th she died.

Between this date and that of the next case, I attended eight cases of labour, *every one of which terminated successfully and without a bad symptom.*

*Case III.*—Mrs C., æt. 20, primipara. A smart, active little woman. Had a *strong presentiment that she would die at the time of her confinement*, her mother having died then. She had a severe shock to her nervous system two months previously, when her mother-in-law died suddenly. She had also during the six weeks prior to her confinement nursed a sister-in-law through scarlet fever. September 30th, 1875—I delivered her at the full term of a healthy infant. The labour was tedious and needlessly prolonged, owing to her having an insuperable objection to instruments. The clinical details of her case may be omitted, though they were striking and complicated. Suffice it to say that, in spite of everything that could be done to relieve her sufferings and bring about recovery, she died on sixteenth day of her illness, having been previously seen in consultation by Dr Macfarlane, Kilmarnock.

Whilst attending this, and before attending the next case, I delivered seven patients; the first one, attended on October 5th, being a primipara, æt. 30, in whose case I used forceps. All recovered without a bad symptom.

*Case IV.*—On November 15th, 1875, I attended Mrs L., æt. 34, multipara. The baby was born before I arrived at the house—a respectable farmer's. I had therefore only to remove the placenta, which lay in the vagina, and put on the binder, proceedings which brought me into very trivial contact with her person. The labour had not been of a satisfactory kind, however. The membranes had ruptured on the 13th early in the day, and I was then hastily summoned to attend. After waiting two hours, and finding that the os was quite closed and no pains present, I left, and was not called again till the 15th, late in the day.

When I left her after labour, her pulse was 60 and languid. Twelve hours afterwards, when I made my visit, her pulse was 84. I remarked this, but the patient and her attendant thought it could be of no serious import, as she was so well in other respects. I had my fears somewhat allayed, therefore. Early next day, however, I was summoned to see her, and learnt that she had had a most severe rigor about 2 o'clock a.m. Her pulse was now 160, very weak and thin. Well-marked peritonitis was present. She was treated *secundem artem*, and was seen in consultation by Mr Rankin, Kilmarnock, who had attended her, seven years previously, for a similar illness. Very shortly before her dissolution, which occurred on the 19th, the fourth day of her illness, she passed a stool which was perfectly acholic and very offensive.

The day after attending Mrs L., I attended Mrs O., a poor woman, living under very bad hygienic conditions. She recovered, however, without a bad symptom.

*Case V.*—Mrs C., multipara. Attended November 23rd, 1875, late at night. On 25th learnt she had had a severe rigor. By her own statement it appeared that she had had the baby in bed with her, and that, as it cried, she had sat up in bed and endeavoured to get it to suck. The child could not be pacified, however, and she could not waken her nurse, who was deaf, and had gone to sleep, and so was unable to get relief. She supposed she must have sat up a long time, and the rigor was the direct result of her imprudence. By the time I saw her, peritonitis was pronounced, and she was very prostrate. I had

the pleasure of consulting with Dr Frew on this case; but in spite of everything that could be done for her, she succumbed on the 28th, being early on the 5th day of her illness.

On the 24th I attended Mrs M'F., who lived next door to Mrs C., and who was present at Mrs C.'s *accouchement*. She made a good recovery, notwithstanding that her nurse went down and helped to arrange Mrs C.'s bed and change her cloths on the 26th. These two confinements happened just one month after I had ceased attending Mrs M'F.'s family for scarlet fever. There were three cases in all, and they were as severe cases as any I ever attended. One child died comatose on the third day of the rash, and the other two narrowly escaped with their lives. Mrs C.'s elder child I had also attended, but in his case the fever was so mild as scarcely to call for any treatment. The younger child was not attacked at that time. *About four weeks* after Mrs C.'s death, however, I was called to attend this younger child for what appeared to be scarlatinal bubo, accompanied by suppression of urine. I feel satisfied it was the ordinary sequela of the fever it had probably had about the time of its mother's confinement. The fever had been, as with its brother, mild, and no symptom had been sufficiently prominent to attract attention at a time when everybody's attention was given to the mother. I remember the child was out of sorts at the time, and had to be taken into the bed beside the mother during the latter's *accouchement*.

It must be stated here, that for some time previous to and during the time I attended Mrs M'F. and Mrs C., I was attending a case of poisoned finger, where the consequent inflammation involved the palm, and several incisions had to be made for the purpose of evacuating the pus. Antiseptic dressings were used, and the amount of suppuration was therefore limited.

*Case VI.*—Mrs F., æt. 33, multipara. A flabby, scrofulous, unhealthy woman, much overwrought, and had been in poor health for some time. Lived under bad hygienic circumstances, and for last three months had a child bedfast with enteric and its sequela. January 6th, 1876—Delivered of a healthy, well nourished infant after a languid labour, the waters having escaped as in Case IV. about 48 hours previous to delivery.



January 8th—Had a rigor. Lochia very offensive. No abdominal tenderness. Lactation uninterrupted. January 9th, 10th, 11th—Lochia odourless, after injection of Condry's fluid. Had two more rigors. January 12th—Had another rigor. Still no abdominal tenderness, and lactation and lochia uninterrupted. 14th—Was very much better. Had no more rigors. 17th—Was progressing favourably; and 20th—Was able to sit up for a little.

REMARKS.—I think no one will venture to call in question the assertion that Case I. was autogenetic, and that the predisposing cause was mental depression, and the exciting one her having sat up in bed and wearied herself trying to get her baby to take the breast.

I can throw no light on the causation of the second case, it having occurred in the practice of another. However, it had all the appearance of a case that would be eminently contagious, and yet, I attended eight cases before attending the third case, *all of whom did well*.

Nearly seven weeks had elapsed since my attendance on No. II., when I delivered No. III. It is hardly possible I could have been the medium of infection here, if infection there was. Of all the eight patients above alluded to, none were *à priori* less likely to be recipients of a puerperal poison than this smart little woman. Besides it was to all intents a different *kind* of fever. In No. II. the fever was the essential disease, the peritonitis, &c., being complications; in No. III. the peritonitis was the essential complaint throughout, the fever being symptomatic. Her connection with scarlet fever is significant, but I cannot persuade myself that this was the cause of her trouble. I incline to the belief that her illness was like that of No. I., entirely autogenetic, the predisposing cause having been mental, and the exciting cause not obvious.

Whilst attending Mrs C., I also attended Mrs C. A. She was a primipara, æt. 30, strong and vigorous. Both husband and wife were very anxious about the issue of the case, and so against my will I had to remain a long time with her, wearing the same garments I wore when attending Mrs C. (I would be about thirty-six hours in pretty close attendance), and finally

had to use long forceps. She made an excellent recovery. It is manifest from this, either that the fever from which Mrs C. suffered and died was not communicable, or else Mrs C. A. was not inoculable. During October I also attended six other cases, all of which did well.

On November 15, or exactly a month after Mrs C.'s death, I attended Mrs L. Her case has often caused me to make the mental inquiry whether some cases of puerperal fever may not antedate the birth of the fœtus. I am firmly persuaded in my own mind that hers was an autogenetic fever, and that she was ill previous to her delivery and before I first saw her. In her case I only made one vaginal examination, which was two days before her delivery, and consequently before the vaginal surface could have been abraded and absorption made easy. After labour, very little manipulation sufficed to bring away the afterbirth, and supposing myself to have been at the time infection-laden, it is not readily conceivable how I could have communicated it here. But, *can I have been infection-laden, and yet able to attend Mrs O., the very next day after Mrs L.'s confinement, and yet not convey it to her?*

Mrs C.'s case (No. V.) was the most nearly consecutive of any of the series, and but for Mrs O.'s intervening I should have had very little hesitation in believing that I was the infection carrier. The occurrence of this case, however, renders it at least doubtful. I incline to the opinion that it was another instance of autogenesis—the act of giving birth being probably the last of a series of causes tending to upset the standard of health, and most likely, of these, actual contact with scarlet fever was not the least. Since Mrs F.'s case (No. VI.), I have only attended one case, which was on February 11th—a fronto-pubic presentation—requiring the use of long forceps. She made an excellent recovery.

No one who knows anything of the literature of puerperal fever, or who has had much experience of it in practice, would venture to assert that medical men have never been the means of conveying the disease to their patients. On the contrary, there is ample evidence on record tending to support the opposite position, and most of us are

aware of instances in which it has occurred. Nevertheless, I think our views upon the subject have been and are too narrow and dogmatic. It has been proved that the fever may be autogenetic. My first case would prove it, supposing there were not another on record. This being established, then, it is quite possible that a number of cases—autogenetic—may occur in any practice within a limited period; and the assertion that all the cases following the first were due to conveyance of contagion by the medical attendant, should not be made without the most complete proof that such was the case in the individual instance. I contend that of this proof *consecutiveness of cases* should be the most essential element. For I believe we have not to encounter here a difficulty which faces us in dealing with the etiology of other fevers, viz., the question of greater or less predisposition to the fever. Let it be granted that an accoucheur is infection-laden, it matters not from what source, then *all* parturient women are liable, and equally so, to absorb the poison from him. I maintain it would be quite impossible for an infection-laden practitioner to attend a case to-day which should do well, and another which should die, and a third to-morrow who should do well.

The question whether puerperal fever, when it has once been engendered, is *always* infectious or contagious, is also raised by my “experience.” It is a very difficult one to answer, owing to the precautions in the way of disinfection invariably adopted. The only case of my six which, if I may be excused the expression, *looked* infectious, was that of Mrs H. (No. II.), which answered to Ramsbotham’s description of puerperal typhus, and yet I am not aware that any case became infected through it, although the practitioner in whose practice it occurred has a large midwifery practice amongst the lower classes in the town.

The question of quarantine is the necessary complement of the other questions relating to puerperal fever. The element of disinfection comes in here again, and renders it difficult to estimate the *length of time* required to get rid of infection. So far as my “experience” goes, and supposing, for the sake of argument, that I was infection-laden during the whole of the

autumn months after attendance on Case II, then it will be evident that, *even with the aid of disinfectants*, 85 days (July 7th to September 30th), are insufficient to get rid of the poison. The periods between the other cases were respectively 4 weeks, 8 days, 6 weeks.

It may be remarked here that I had on the same coat—a loose jacket—at all the confinements except the first. The disinfectant was Condy's Fluid, which was used on all occasions, both to wash out the vagina of the patient and for my own hands before leaving the house. Then I am in the habit of taking a Turkish bath every two or three weeks, which I regard as the best of all personal disinfectants.

It is a striking fact that in all the cases, except Nos. II. and VI., the lochia were normal, so far as order and quantity was concerned. Regarding the lochia in No. II., I did not investigate personally, as the case was hopeless ere I saw it. In No. VI. they were most offensive, however, and the odour of them attracted my attention before any other symptom. Yet the patient recovered.

Regarding treatment. It was mostly palliative and supporting. Venesection seemed to be contra-indicated in all the cases, though possibly if this had been resorted to better results might have been obtained. In two cases the peritonitic pains followed most insidiously in the wake of after-pains, and indeed simulated after-pains, the patients stating *in answer to inquiry* that the discharge increased when the pains were severe. Possibly after-pains and peritonitic pains were cotemporaneous, though considerable pressure was borne. It is important to have this possibility in mind in coming to a diagnosis. In all the cases the most distressing feature was tympanites, and it was also intractable. In No. III. the subcutaneous injection of morphia was in constant requisition, and on more than one occasion I injected *three grains* before relief to pain was obtained. Later on, when all hope of the patient's recovery was gone, I punctured the colon with the hope of relieving her great sufferings, but without much benefit; possibly adhesions had formed, more likely the muscular coat was paralysed.

Brandy, opium, and calomel and opium were freely used, but seemed to me to be partly causative of the gastro-bilious symptoms which occurred towards the close.

In No. VI., where the rigors were frequent, though not very severe, invaluable benefit seemed to accrue from the use of jaborandi. It was used in half drachm doses of the powder given after each rigor. This, combined with an ordinary febrifuge mixture containing a little morphia, and a vaginal douche, was all the treatment employed.

*Note.*—May 23rd, 1876.—Since the above was written I have attended 7 confinements (2 being forceps cases, and 1 with *antepartum* hemorrhage) and all have done well. I have not been from home, have used no further means of disinfection, and have worn the same clothes.

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#### IV.—OTOLOGICAL MEMORANDA.

BEING CLINICAL OBSERVATIONS ILLUSTRATIVE OF THE DISEASES AND INJURIES OF THE EAR.

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#### II.—On Injuries of the Membrana Tympani.

EXCEPT in the case reported by Wederstrandt, in which molten lead was poured into the ear of a drunken man, no more "leperous distilment" was ever poured into the ear since the days of Hamlet's father, I fancy, than was in the following case:—

*Case X.*—A man, *æt.* 68, was seized with severe pain in his right ear during the night. With the object of affording her husband relief, the good wife rose from bed, and in the dark poured into his ear what she supposed to be oil of sweet almonds. An immediate shriek from the husband caused her to procure a light, and investigate into the cause of his increased distress. It was then discovered, that instead of pouring in bland oil of almonds, she had filled the meatus with strong oil of vitriol, used by the dairy-maids to clean the zinc milk-pails.

The patient was sent to me two months after the occurrence just related. During the interval since the time of the accident no treatment had been used, nor did it appear from the patient's statement that at the moment of the occurrence any means had been adopted to counteract the baneful effects of the corroding agent. The patient sought my assistance for arrest of the profuse otorrhœa, which troubled him most; indeed, he had no other complaint as to the injured ear except the deafness. Even this gave him no annoyance, although it was great when tested. This fact was explained in some measure when the left ear was examined, for although it was declared to be perfect, it was only so in part. On the right or injured ear loud monosyllables were heard at one foot distance, and the watch was inaudible on contact with the auricle. On the left, or uninjured ear, ordinary speech was tolerably well heard, and the watch  $\frac{1}{7\frac{1}{2}}''$

On a more complete examination of the damaged organ, the external meatus was seen to be uninjured, the membrana tympani much congested and hypertrophied. In the centre of the membrane there was a large perforation, through which granulations projected. These I regarded as proliferations of the papillæ of the lining membrane of the tympanum, stimulated to increased growth by the hyperæmia of the other tissues, and that the removal of the latter would be followed by the subsidence of these polypous granulations. The left membrana tympani exhibited trophic changes (senile katarrh) which in some degree explained the deficient hearing, which, however, was probably not noticed, as it certainly was not complained of by the patient. The labyrinth on the right side was normal; so also was the Eustachian tube, with the exception of the trophic changes which I have described as being seen in the tissues of the uninjured organ. In diagnosing this case, a difficulty presented itself at the outset: Was the condition of the ear from which the old man suffered now, primarily due to the corroding action of the acid, or the consequence of an attack of acute tympanitis, aggravated by the instillation of the vitriol; in other words, was it at the present time a case of simple idiopathic tympanitis, or one of traumatic otitis media purulenta? In relation to the prognosis to be given in

the case, the settlement of this point was of considerable moment, and would have attained to greater importance had the case been the subject of a medico-legal investigation. The history, as is usual in such cases, helped little to solve the difficulty, for it was not by any means clear that the pain with which the patient was seized on the night of the accident was really in the ear; more probably it was toothache, the pain being referred, as is often the case, to the ear. On the other hand, if all the destruction of tissue and morbid action going on were the result of the action of the acid, there remained the probability that the granulations springing from the tympanic cavity, as already described, were not so simple in their origin as I had supposed; that, in fact, they possibly owed their existence to bone whose vitality had been destroyed by the action of the acid. Were this latter supposition to be established, then it would be impossible to predict with certainty the issue of the case. A favourable, but qualified prognosis was therefore given, chiefly owing to the fact that so far as could be ascertained with certainty, the morbid processes were confined to the soft tissues, and leaving out of view the perforation in the membrane, these were not ulcerated. The principles of treatment indicated and carried out were to remove congestion and promote cicatrisation of tissue by improving its tone. The case did well.

*Rupture of the membrana tympani*, by condensation of the column of air in the external meatus, is shown in the following cases. The possibility of such an occurrence taking place has been questioned, but these cases place it beyond doubt. Indeed, clinical experience prevents me from accepting as conclusive the experiments made by Gruber concerning the resisting power of this membrane. He found the membrana tympani to resist a force equal to the pressure of four atmospheres without rupturing, indeed, using all the force he was capable of exerting with a syringe fitting tightly into the meatus, he never succeeded in making a lesion in the membrane. My experience shows that a well directed, but by no means violent, blow on the auricle ruptures the membrane readily, and that sudden condensation of the column of air in the meatus, as in diving,

may cause a like injury; while the cases one sees due to a "slap" on the ear from the school teacher, testify to the ease with which rupture may be produced.

*Case XI.*—A gentleman, *æt.* 35, was struck on the left ear by a thief, who attempted to commit robbery from the person. At the instant of receiving the blow there was felt a great ringing in the ear, slight pain, and after a few minutes deafness. The pain passed away, but the tinnitus and loss of function continued. After the lapse of forty-eight hours the pain returned and gradually became worse, till, on account of its severity, the patient was obliged to lie in bed. At this stage I was asked to see him in consultation with the family attendant, who I found had treated the case most judiciously. The patient was quite deaf to ordinary conversation on the injured side, and complained of the agonising pain from which he was suffering, begging most piteously for relief. Examination showed that he was suffering from intense general otitis, all the structures of the organ, even the mastoid cells being involved. The *membrana tympani*, imperfectly seen, was ruptured, and from the tympanum there was escaping freely a muco-purulent discharge. The high degree of constitutional disturbance, in sympathy with the local disease, excited the apprehensions of the ordinary attendant, as well as my own, lest the meninges had become implicated in the inflammatory action, nor were these fears lessened by the knowledge that the patient had vomited causelessly and was delirious at night. The general character of the otitis, and the severe and alarming constitutional disturbance just mentioned, rendered it prudent to give a cautious prognosis, not without a hope that active treatment would bring about a speedy resolution of the inflammation. With this object in view, mental and physical quiet were enjoined, and the local abstraction of blood ordered from the antitragal region; free purgation and afterwards full opiates to allay pain and procure sleep. For several days the case gave great anxiety, chiefly on account of the condition of the mastoid cells, but the re-abstraction of blood and a continuance of the opiates, with which it was considered advisable to combine small doses of calomel, placed him in comparative safety in eight days. In



a month from the date of my first consultation he was convalescent. When I last heard about the patient his hearing was quite good, and the ear gave him no trouble. The following case is in illustration of the same subject:—

*Case XII.*—A young gentleman, in boxing, received a smart blow on the left auricle from the gloved hand of his opponent. Pain was felt in the ear immediately after the occurrence, and next day there was a discharge from the meatus. On the third day after the accident he waited upon me. The hearing was less than normal to ordinary speech, and to the watch  $\frac{1}{2}$ '' His chief complaint, however, was of a sensation of heat and fullness in the ear, and of the discharge from the meatus. The labyrinth had not suffered from the injury. On examination, the membrana tympani was seen to be ruptured in the anterior half, and the other parts of it highly congested. The cavity of the tympanum was in a state of acute inflammation. Since this latter complication had not caused any very marked general sympathetic disturbance of the system, I was disposed to regard the case as one capable of self-cure, if put under the conditions most favourable to this end. Local depletion and a few days' rest and quietness sufficed to subdue the inflammatory action, and in a very short time, without any other treatment, the ear was quite well and the hearing normal. This case stands out in striking contrast to the one previously related. Both patients were injured in a nearly similar manner, yet how different were the cases in their after-course—the one patient escaping with his life, the other requiring persuasion to give himself rest and quietness in aid of cure!

*Case XIII.*—A young man dived head foremost into the sea to a considerable depth. On coming to the surface he felt pain in the right ear. This symptom increased in severity, and when I saw him, 12 days after the accident, he still complained of severe pain in the ear. There was also a copious muco-purulent discharge from the meatus, and general inflammation of all the tissues of the organ, including the mastoid cells, and periosteal covering of the mastoid region. This part of the external ear-region was tender on slight pressure, and discoloured. The pain from which the patient suffered was, however, not due to

this periostitis, but to the deeper-seated mischief, for it was of a heavy, dull kind, not affected by *steady*, firm pressure over the mastoid region, but made almost unbearable, for the moment, by a light, *sharp percussion stroke* over the same part, a symptom which I am accustomed to rely upon, in differentiating between mastoiditis and mastoid periostitis.

Owing to the concentric closure of the meatus, the membrana tympani was imperfectly seen at the first consultation. It was ascertained, however, to be perforated; and subsequently the size, site, and form of the lesion were correctly noted.

In addition to the symptoms just mentioned, there was a high degree of sympathetic fever and occasional delirium. Once or twice also the patient had vomited.

The severity of the symptoms made it prudent, that in reply to the friends' inquiries, we should give a guarded prognosis. The following treatment was carried out:—

On account of the violence of the constitutional disturbance and the very critical condition of the mastoid, I deemed it necessary to place the patient under the influence of mercurials from the outset, and to abstract blood locally from the antitragal region. With the mercurials was combined enough opium to procure relief from the pain. In order to permit of the free egress of the morbid secretion from the tympanum, the perforation in the membrane was kept open by daily politzerisation and the occasional use of the Eustachian catheter. For some days there hardly seemed to be any appreciable change in the patient's condition, but so soon as he had taken enough of the mercurial to influence the system, he began to improve. From this onwards the progress of the case was, with two exceptions, satisfactory. On the two occasions to which I refer, owing to the sudden and unexpected blocking up of the perforation, and consequent arrest of the still copious discharge, there was a relighting of the tympanitis. Eventually, by carrying out the principles of treatment first indicated, complete recovery took place.

A question in relation to this case may be pertinently asked: Was the lesion in the membrana tympani traumatic in its origin? In reply, I may state that from first to last in the pro-

gress of the case it was impossible to satisfy one's self as to the character of the lesion. Had the case come under notice immediately after the occurrence, or before the outset of the inflammation, a definite answer could have been given to the question.

Concerning the differential diagnosis of structural lesions of the membrana tympani, I shall have something to say presently. Meantime, I may state that the evidence, chiefly of a negative kind, inclined me to the view, that, as the patient himself expressed it, "the drum had been burst" in the act of diving, either by the condensation of the air contained in the external auditory canal, or by the direct mechanical contact of the sea water, or both combined. Fortunately, the determination of the origin of the disease was not essential to its successful treatment. However caused, when seen by me, it had resolved itself into one of general otitis media and mastoiditis, and this knowledge sufficed for the object we had in view, as has been related.\*

*Case XIV.*—A boy, æt. 12, was brought with the following history. In infancy had a "running" ear after measles; from this he is said to have recovered. Till he was 7 years of age the ears had not occasioned trouble. At this time, in school, he received a smart slap on the ear from the teacher. This was followed by pain in ear and head, much ringing and deafness. This latter symptom was the one for which relief was sought. He was very deaf to conversation. On examination I discovered evidences of the early ear disease and its consequences in both ears, and on testing the hearing distances they were found equally impaired. In the right membrana tympani there was in the anterior superior quadrant, close to the short process of the malleus, a sharply-defined, circular perforation of about a line in diameter, as if a portion of the membrane had been punched out. At first sight this lesion seemed to be patent, but it was subsequently, by fuller examination, ascertained that the deficiency or supposed opening was closed by thin connective tissue, concave towards the cavity of the tympanum.

\* It is not unworthy of remark that Nature guards against such contingencies in some fishes and amphibia. At least, I should infer that such is the object aimed at in the peculiar construction of the organ of hearing in, for instance, some cartilaginous fishes, and the whale.

Without entering into lengthy details here as to the other pathological changes which were found, I diagnosed the case as one of exanthemal katarrh of the tympana and Eustachian tubes, upon which had been grafted recently an attack of simple katarrh. The injury to the membrana tympani I regarded as the consequence of the early disease. I was constrained to this conclusion, not so much by the history of the case as by the site of the perforation, and its manner of repair, both of which were against the supposition that the "slap" from the school teacher had ruptured the membrana tympani. The form of the perforation indeed supported the hypothesis that the "slap," by condensing the air in the meatus, had caused traumatic rupture of the membrane, but inasmuch as no discharge came from the ear after the violence, and the manner of repair by connective tissue already referred to was conclusive that such a phenomenon, however slight, must have preceded the healing of the injury, this circumstance alone did not weigh much in the decision I came to. The case did well under treatment, and when dismissed the hearing was normal to speech and nearly so to the watch ( $\frac{4.8}{7.2}$ " on each side).

The result of the examination of this case exonerated the schoolmaster, but it by no means follows that any one could justify the mode of punishment which he adopted. It is sad to find that ears are destroyed by a "slap," and that this mode of ensuring attention on the part of some children is employed by many parents and most school teachers. Children so punished may be doubly punished—in body and mind. In either case they are unjustly as well as improperly chastised, for children are not inattentive but distinctly alert, as parents and guardians may learn after the smallest amount of intelligent observation. *Many cases of "inattention" on the part of children, whether in school or families, are due to defective hearing.*

*Case XV.*—The following case of injury to the membrana tympani possesses a peculiar interest in several respects. A gentleman was firing a small cannon, containing a charge of about half a tablespoonful of gunpowder. He was so placed that he experienced the full force of the lateral expansion of

the explosion. The right ear being nearest to the piece of ordnance, received the largest share of the shock, but the left ear also participated in it. At the instant of the shot going off, the gentleman was made completely deaf, had ringing in both ears, and confusion of head. He had a sharp pain in both ears, the right being worse than the left, and from that ear blood trickled. The deafness and pain gradually subsided. A few days of freedom from these symptoms led him to congratulate himself on his fortunate escape, and he resumed business. From some imprudence, probably exposure to cold, the pain returned in the ears, and the tinnitus, which had never been altogether absent since the date of the accident, increased in severity till it became almost unbearable. These latter symptoms brought him under my notice. His hearing up till the date of the accident was quite good; now it was impaired very considerably to conversation and to the watch; to the latter,  $\frac{2}{7}$ " on the right, and  $\frac{6}{7}$ " on the left. Notwithstanding the marked loss of function, he had no complaint, except as to the pain and tinnitus, the latter distressing him most of all. The following were the objective symptoms. The right membrana tympani was nearly absent in its inferior quadrants; the edges of this opening were cicatrised and its contour irregular. The handle of the malleus projected into the opening, and was unsupported by tissue for two-thirds of its extent. The upper edge of the perforation seemed to be adherent to the inner wall of the tympanum; the lining membrane of this cavity was normal. The fenestra rotunda was visible, as well as the head of the stapes. In the membrana Schrapnellii a horizontal and irregular rupture was discovered, which in part was sealed by a recent coagulum. On the left the membrana tympani was dull and opaque. It exhibited signs of katarrhal changes, and in the centre of the anterior half there was a circular perforation, not much larger than a rape-seed, quite recent in appearance. Both Eustachian tubes were affected by old-standing katarrh, and the labyrinths had evidently suffered shock. On the right the perception of transmitted tones was so impaired as to lead to the conclusion that, besides mere shock, there had been some inflammatory products effused.

There was tenderness on pressure over both tragi. On inflation, air passed freely through the old perforation on the right, and less easily through the small and recent rupture in the left membrane.

It was apparent that, besides the ruptures and labyrinthine shock, the patient had a slight degree of inflammation of the meatuses, the result of the exposure referred to; at least in no way did this state connect itself with the accident, so far as I could determine. The tinnitus seemed also to have become intensified by the naso-pharyngeal congestion from which he suffered.

A few days' rest in bed, small local depletions, and the use of the hydrarg. perchlor. completed the cure.

The case has been related to show (1st) the possibility of traumatic rupture of the membrana tympani taking place when that structure was already extensively perforated, and (2nd) that even the labyrinth in such circumstances may be injured by the force of the shock.

Hitherto the hypothesis as to the manner in which rupture of the membrana tympani and labyrinthine shock took place, was as follows:—A sudden and unexpected condensation of the air in the meatus, by reason of its excessive force ruptured the delicate membrane; the condensed air then passed through the tympanum, escaping into the pharynx by the Eustachian canal. If the membrane escaped rupture, then the force of the shock was transmitted undiminished to the contents of the labyrinth; in other words, rupture of the membrane sufficed to protect this latter portion of the ear and its contents. Plausible as this explanation may appear, I think as a hypothesis it must be abandoned, or at least modified in some way, to explain all the facts that have been recorded. One main objection to it is that it fails to take cognisance of the power which the normal ear possesses of accommodating itself to sound or noise of wide range and varied intensity. That the ear has this power is beyond dispute, apart from experience; for the stapedius and its nerve supply and the unbroken connection between the tensor tympani and the tube and pharyngeal muscles are clearly of the nature of an accommodating apparatus. If we deny that the

ear has such a power of accommodation, as to me it appears to possess, how, I ask, can we explain the comparative infrequency of shock to the labyrinth among gunners in the artillery service, in whom rupture of the membrane is a rare occurrence; or the fact that in an overpowering noise,—as the noise of a boiler factory,—some persons hear ordinary conversation perfectly, who are totally deaf when spoken to in a quiet room, while others, who in the latter situation hear acutely, in the former become completely deaf to articulate sounds? Further, in the case just related, the hypothesis fails to explain the occurrence of labyrinthine shock in the presence of a perforated membrane. For my own part, I do not venture to offer any explanation of these facts; as yet too little is known of the physiology of the organ of hearing to enable one to do so with satisfaction, but I may predict, that when we shall have thoroughly comprehended the causes of the changes in the curvature of the membrane, which I fancy it undergoes in order to fit it to receive the impact of sound or noise, and the function of the stapedius and its relation to the tensor tympani and tube muscles, then we shall have no difficulty in explaining how it is that the soldiers escape ruptured membranes and labyrinthine injury, and that many people “hear better in a noise.”

An authoritative answer may be demanded to the following questions:—Is the ear affection from which the patient suffers, in a given case, the consequence of injury or disease? If the “drum” is ruptured or perforated, what has caused it to be so? To answer these questions with certainty and credit to one’s self demands no mean skill in the differential diagnosis of lesions of the membrana tympani, and special knowledge of aural pathology.

With the exception of a paper on the subject by my friend Professor Politzer (*Ueber Trommel fell rupturen mit besonderer Rucksicht auf die forensische Praxis Wien. Med. Wochenschrift, 1872*), with whose conclusions I in the main agree, I am not aware that the subject has been hitherto treated or even noticed in any works on aural surgery. On this account, what I have to say may not be without interest, and I shall endeavour to make my remarks brief and practical, in order that they may prove serviceable to those of my brethren who possess only a limited

knowledge of aural pathology; happily the clinical histories of the cases I have just related will serve to make clearer my remarks.

In the consideration of the differential diagnosis of lesions of the membrana tympani, the following points demand our attention:—1. The history of the case; 2. Site of the lesion; 3. Its form; 4. Its appearance; and 5. Results of auscultation. In order to show the method by which one may give a decisive reply to the questions which I have proposed above, we must take a hypothetical case. Let us suppose that the patient is brought to us with the statement that he received a blow on the ear, since which occurrence he has been quite deaf in the injured organ. If the patient is not seen till inflammatory changes have set in, one ought to decline to reply to the questions. If, however, on examination, all the organs accessible to ocular and tactile inspection are normal, and there are no visible signs of former disease, we need have no great difficulty in replying to the first question, because the loss of function may be due to some affection of the labyrinth. In order to discover whether this is the case or not, one has but to test the sensitiveness of the auditory nerve by the transmitted tones of the diapason. If the suspicion that the inner ear is the seat of the disease is confirmed by the results obtained, one has to determine then whether it arises from labyrinthine shock, the consequence of an injury, or congestion of a sympathetic or idiopathic nature, or to disease of a hereditary character; the diagnosis lies in fact between these three states. In deciding to which the disease and deafness may be due, the history of the case is here of the utmost value to us. If simultaneously with the receipt of the blow the patient experienced a sensation of subjective noise, followed shortly afterwards by deafness in the injured ear, and if it be found that the perception of tones is impaired, we may, without fear of being in error, decide that the deafness is due to the concussion, and that the latter has caused congestion of the inner ear; if the tones are not perceived at all, there is, in addition, complete paralysis of the acousticus. If, anterior to the date of the injury, the patient had suffered from subjective sensations of noise in the ear, with or without



complaint of deafness, and if in addition there was a history of vertigo, unsteadiness of gait, and occasional vomiting, I should be loth to ascribe any increase in the deafness, or even its onset for the first time, to the injury, on the ground that some congestion of the inner ear of the nature of Ménière's disease had existed previously to its receipt, and that it is in the nature of such an affection to become worse, even to total deafness, by mental excitement alone. Such a case is really one of congestion, and it may be of effusion as well, within the inner ear, at first of an idiopathic nature, but doubtless aggravated more by the circumstances accompanying the receipt of the supposed injury than by the injury itself. If, in the history of the case, we find clear evidence of a syphilitic taint, making itself known in the patient's person by notched teeth, keratitis, and the syphilitic physique, we may unhesitatingly diagnose a trophic degeneration of the nerve to which the loss of function is due; so that while concussion of the labyrinth might aggravate, it could hardly be justly blamed as the cause of the deafness. As a rule, giddiness or vertigo and a staggering gait never occur in cases of simple shock or in trophic changes of the nature just mentioned. On the other hand, one or other of these symptoms are hardly ever absent in cases of labyrinthine congestion. In cases of simple shock the subjective tinnitus and deafness are the marked symptoms with a muffling of the tone perception. In trophic degeneration, on the other hand, the subjective tinnitus is an inconstant symptom, while the degree of deafness and loss of perception of transmitted tones, together with the signs of constitutional taint, are very pronounced, and leave no doubt on one's mind as to the nature of the affection.

Again, it may be that in the case submitted to us for our opinion, we find evidences of former disease in the tissues of the organ, and a lesion of the membrana tympani as well; in such a case our duty consists in learning if this latter is recent and coincides with the time of receipt of the injury, and whether or not the labyrinth has suffered in consequence of it. If the lesion is not recent, and the labyrinth is unaffected, we have good grounds for affirming that the loss of function is due

to progressive tissue changes arising out of former disease in the organ, rather than resulting from the rupture of the membrane. Let us suppose, however, that the case comes to us for examination before complications have arisen to hinder this proceeding from being satisfactorily accomplished, and that the labyrinth is unaffected. If the lesion is recent, and this point is easily determined, we need have no difficulty in saying whether it is the consequence of disease or injury. In addition to a consideration of the history of the case anterior to the time of the receipt of the supposed injury, we must have a regard to the site of the lesion. Traumatic lesions of the membrana tympani are generally situated in the posterior half of the membrane, less frequently in the anterior half, and nearly always in the inferior quadrants of these segments. The centre of the membrane is never the site of traumatic rupture. On the other hand, perforations due to disease are most frequently found occupying the centre of this structure, and extending into one or other of the quadrants into which it is divided.

The next point to which we must direct our attention is the form of the lesion. Solutions of the continuity of the membrane due to the cause already named, *i.e.*, condensation of the air contained in the meatus, are nearly always round or oval in form. The exceptions to this are as follows:—Occasionally the lesion is a mere slit, the edges of which are in apposition, or it may be stellate in appearance, this latter form resulting from the rupture occurring in the scar of a healed perforation, or in a part of the membrane in which the fibrous laminæ have from some cause or other become atrophied. The appearance of the lesion is also to be noted. When this is recent and of the oval or round form, the edges are sharply defined, as if the part wanting had been punched out with an instrument. Through this opening the lining membrane of the tympanum may be seen, usually of a pale pink, lustrous aspect. When the lesion has one or other of the exceptional forms just named, the edges are usually in apposition, and it is therefore impossible to see into the cavity of the middle ear. The edges of the irregular linear rupture, if it has taken place in a normal part of the membrane,

are usually agglutinated together by a coagulation of blood, but this is never observed in the stellate form when it occurs in a portion of the membrane such as I have briefly described above.

The results of auscultation, obtained either by the active or passive methods of inflation of the tympanum, are of immense value in some cases, in arriving at a correct diagnosis as to the character of the lesion. If the perforation in the membrane is either round or oval and traumatic in its origin, the r le heard by the otoscope is broad, soft and deep in tone. If it is sibilant or largely crepitant, you may suspect some former katarrhal affection of the tympanum or Eustachian tube; a suspicion which more exhaustive examination will in all likelihood confirm. In such a case, while the lesion may have been caused by the alleged violence, in all probability the deafness of which complaint is made had existed long anterior to the time stated on which the blow was received; and, in reality, was the consequence of the katarrhal affection, the evidences of whose existence your examination may have discovered. This will be further confirmed if through the opening in the membrana tympani a small quantity of muco-pus is seen to escape. If the lesion, no matter its situation, has smooth, bevelled, or it may be granular edges, and through it the lining membrane of the tympanum is seen highly congested and villous, no doubt need exist either as to the cause of it or to the nature of the case; it may have arisen from an injury received long previously to the date of our examination, but the weight of the evidence is against such a probability.

Inasmuch as the injury done to the membrana tympani in a case of deafness due to genuine labyrinthine shock may be very slight or even not discoverable, it follows that in forming a prognosis in such cases an endeavour must be made to estimate the nature of the damage done to the contents of the inner ear. Speaking generally, the character of the opinion will be determined by the degree of the intensity of the subjective tinnitus and the amount of impairment in the perception of transmitted tones which the patient experiences in the injured organ. If the damping in the perception of these latter is slight

as compared with the uninjured ear, and the tinnitus mild in tone or altogether absent, a favourable issue may be predicted. If, however, there is total loss of the perception of the tones of the diapason, and a shrill, subjective noise heard in the affected ear, it may be affirmed with some degree of confidence, that a complete restoration of the function of the injured organ is not likely to take place, and that the deafness to articulate sound may become intenser and permanent.

In the treatment of cases of deafness arising from injury to the labyrinth of this nature, I have always regarded the tinnitus as indicative of congestion of the vessels of the inner ear, and the damping of the tone perception as caused by their pressure upon the minute nerve fibres in the cochlea. Complete non-perception of the tones, however, may exist from the outset with or without tinnitus; in either case there is paralysis of the cochlear division of the auditory nerve.

Holding this view of the pathology of labyrinthine shock, I usually, in the treatment of cases in which the tinnitus is intense and the tone perception dulled, endeavour to lessen the congestion of this part of the ear, by the local abstraction of blood, free purgation by salines, and mustard pediluvia. These measures, coupled with mental and physical rest, have hitherto yielded me good results. In some cases, however, they have failed to afford complete relief to all the symptoms, especially the tinnitus. Where this has been the case, I have had reasonable grounds for suspecting that some inflammatory products had been effused. In such instances the prolonged use of the perchloride of mercury (best given in the tincture of bark of the Edin. pharmac.) has afforded me satisfactory results, and the patient relief from the distressing and distracting tinnitus. If, from the outset of the case, there is an entire absence of this symptom, or any other sign indicative of active congestion of the labyrinth, the constant current may be used in the manner directed by Rudolph Brenner, with a fair hope of restoring the normal perception of tones, and of removing the deafness to articulate speech. For the same purpose its use is admissible after the congestion is removed by appropriate means such as I have indicated, but not till then.

Fortunately—and this ought never to be forgotten—in many cases of injury to the labyrinth, such as those under notice, Nature, unaided by Art, is capable of effecting a cure.

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V.—TYPHUS FEVER COMPLICATED WITH INTESTINAL HÆMORRHAGE.

By ALEX. W. REID, M.B., *Arnold, Nottingham, formerly Resident Medical Officer, City of Glasgow Fever Hospital, Belvedere.*

THE following case, which has come under my notice, presents points of interest both general and pathological. It affords a good illustration of that rare and very fatal complication of typhus fever intestinal hæmorrhage. Dr Murchison, in his extensive experience, only met with six cases in about 7000; and Dr Russell three in about 4000 cases of typhus—all ending fatally. It is for this reason that I am induced to publish the facts of the case, together with a few remarks on what is probably the best line of treatment to be adopted in all such cases.

The facts of the case are as follows:—

Patrick T., aged 30, labourer, Bridgegate, was admitted into Belvedere Fever Hospital on 23rd October, 1874, complaining of headache, general weakness, loss of appetite, great thirst, &c.

*Past History.*—Was always a very healthy man until the present illness, which commenced thirteen days ago, and exhibited throughout the usual symptoms of typhus, the last five days being characterised by complete prostration. For some time prior to his illness his diet had been of the most meagre description. During his illness he had little or no attention, and consequently almost nothing of subsistence. History of infection undoubted.

*Present Condition.*—Patient's physiognomy is dull and vacant; face greatly flushed. Conjunctivæ injected to a marked degree. Tongue with a thick yellowish-white central fur. Bowels costive, and have been so all through his illness.

Still slight headache. All over the trunk and extremities is a well-marked "mulberry rash." A few of the spots have attained a petechial character. Skin pungent. Pulse 124, full, regular, and non-compressible. Organs normal.

During the night he slept well, but became somewhat restless towards 7 A.M. At this hour, on the 24th, he began to bleed *profusely* from the bowels. Had no vomiting nor retching. Drank well, and was perfectly conscious, but extremely weak and pale. The pulse was very soft and compressible. He had Tr. Ergotæ administered internally, cold applications to abdomen, and was stimulated with brandy. About 8 o'clock a small quantity of clotted blood was discharged. Up till 9 o'clock—the ergot and brandy being continued—he seemed to be rallying so well from the shock of the hæmorrhage, that he then told the nurse he was "getting all right." His pulse was improved, but still remained soft and compressible, although perfectly regular. In about twenty minutes after this he again became extremely weak, and died, no further discharge of blood having taken place. About ten minutes after death, however, a small quantity of blood came from his mouth.

*Autopsy.*—No emaciation. *Post mortem* lividity at dependent parts. The abdomen being opened, the intestines presented *in situ* a universally dark tint.

*Heart.*—Considerable serous effusion (somewhat sanguineous) into pericardium. Blood in cavities small in quantity, dark, and perfectly fluid; no clots. Valves normal; texture firm.

*Lungs.*—Both lungs at dependent parts were congested; no consolidation. Right lung, near the apex posteriorly, and within a small area, showed recent pleurisy; adhesions there were slight. On cutting through the trachea, just above the bifurcation, so as to remove both lungs *en masse*, a small clot of blood escaped. The mucous membrane of the lower part of trachea and the larger bronchi was slightly reddened from extravasation of blood; that of the smaller bronchi was normal.

*Stomach* was considerably distended from flatus. The

whole of its posterior or dependent surface, and a part of the anterior surface of the cardiac end, presented deep red discolouration. The mucous membrane was universally so; the dependent portions—especially the cardiac end—being of a very dark port-wine colour, and that of the anterior wall more of a sherry tint. The mucous membrane itself was very soft and flabby, and easily peeled off. The contents were mostly clotted blood, weighing two pounds.

The whole tract of the small intestines showed a universally congested discolouration—more marked and of a much deeper tint in the upper part of the tract, and gradually lessening in depth as the colon was approached. There were large blotches of an almost black hue distributed over the duodenum and upper part of jejunum, the discolouration of the intervening portions being redder and almost entirely removable by drawing the finger firmly along the surface of the membrane, thereby removing the blood thrown out on its surface. The blotches in the ileum were fewer, and more of a light port-wine colour. The mucous membrane of the duodenum alone seemed to be partially disintegrated. No infiltration of Peyer's glands was detected, and the intestines were almost empty. From the ilio-cæcal valve to the end of the large gut, the mucous membrane was perfectly normal, not the slightest indication of hæmorrhage being seen. Liver, kidneys, and bladder normal. Spleen enlarged, and very soft.

*Remarks.*—The usual liquidity and hypinotic state of typhus blood were no doubt intensified in this case by the bad living of the patient prior to the attack of fever. This accounts for the extensive hæmorrhage, an occurrence which, in some form or another, as hæmoptysis, epistaxis, &c., frequently takes place when typhus fever prevails in conjunction with scurvy. The low vitality of the patient will probably also explain why there was no hæmatemesis, and yet profuse hæmorrhage from the mucous membrane of the stomach.

As the internal administration of the tinct. ergotæ had been so much lauded in the treatment of intestinal hæmorrhage in typhoid fever, it was used in this case, there being no indica-

tions pointing to the hæmorrhage taking place in the stomach. Altogether no less than four drachms were administered before death, but the bleeding evidently continued. This, no doubt, was greatly due to the power of absorption by the mucous membrane of the stomach being abnormally low. The internal administration should therefore not be trusted to in such cases, but a method adopted whereby a more rapid check to the hæmorrhage will follow. The hypodermic or direct injection into the circulation provides such, I think; and no remedy rivals ergot, which is supposed to act on the muscular coats of the vessels through the sympathetic system. This form of administration I have found very successful indeed, even in typhoid cases, and especially in two cases where the hæmorrhage was profuse and the patients much reduced. In these, where there was good reason to think that the ulceration in the bowels was pretty far advanced, the hypodermic injection of ergotine had an immediate and lasting effect. In one of these cases a little swelling and pain took place at the site of puncture, but subsided without suppuration, which I have never found to follow in the many cases I have employed ergotine hypodermically. When it is so far successful in typhoid cases, surely it will be equally so in cases such as the one reported, where the hæmorrhage was more of the form of "weeping" from the mucous membrane. Its undoubted success, too, in cases of hæmoptysis, and post-partum hæmorrhage, in which I have repeatedly tested its value, makes me all the more strongly advocate its employment in such as the above. Some prefer the ext. ergotæ liq. as being more powerful than a solution of ergotine. The latter was used by me in the strength of about five grains to the twenty minims. I may add, that I would have tried the hypodermic method in the case under notice, but was prevented, from not having the materials at hand.

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## VI.—A CASE OF INTRA-CRANIAL TUMOUR.

By JOHN H. ARBUCKLE, M.D., *West Riding Asylum.*

M. H., 44 years of age, single, and by occupation a weaver, was admitted into the West Riding Asylum on 10th December, 1868. The medical certificate accompanying her stated: that she had "great nervous excitement, want of accord in the expression of the different features, great garrulity and gesticulation—saying that every one was behaving badly to her, and that she was blind and deaf." That it was not her first attack, and the exciting cause of it was unknown. Her first attack occurred at the age of 19 years, when she was treated in Gate Helmsley Asylum for four months. It was also certified that she was not epileptic, but suicidal and dangerous to others.

On examination she was found to be over the middle height, but thin and anæmic in bodily condition. Her lungs were normal. There was a soft murmur following the first sound of the heart at the apex. Her tongue was red and irritable, but her appetite averagely good. Her genito-urinary functions were normal.

Patient could converse with some intelligence about her condition, but at times became very excited and demonstrative; she said that at various periods of her life she had suffered from "nervous excitement," and when 21 years old was confined in a private asylum for some months; that on another occasion she got low spirited and attempted suicide by cutting her throat. While giving this history she became very discursive, and said, among other conclusions she had arrived at, she believed she had suffered every seven years since her birth, and that she should continue to do so. But when she was told that the attacks she related did not correspond either in number or periods to the epochs of her life, she endeavoured to make out a few more attacks to get the dates to fit in.

It was ascertained she had been reading quack books, such as "Man Know Thyself," "Culverwell on Marriage," &c.

She was ordered 15 minims of tincture of the perchloride of iron thrice daily for her anæmia.

Nothing noteworthy occurred in her condition till July 18th, 1871, when an attack of hemiplegia came on very gradually. There was no history of any actual apoplectic seizure obtained. It was noticed that her mouth was drawn to the left side, there was drooping of the right eyelid, contraction of the right pupil, and drooping of the right side of the face. The tongue was protruded to the left. The right side of the occipito-frontalis was smooth and expressionless, whilst the left was elevated, wrinkled, and expressive of anxiety. No reflex action was shown by the feet or legs when touched with the hand or pricked with a pin. The minute veins of the feet and legs were varicose and injected. There was great flushing of the face, and on the neck some purple blotches existed from the pressure of her night dress. The *tache-cerebrale* was well marked. She complained of earache, with a discharge from the right ear. There was no loss of power in the hands.

*July 21.*—The conjunctiva of right eye began to be injected, and she complained of pain in it. The right pupil kept smaller than the left, and she was still rather flushed. She employed herself with sewing.

*July 13, 1872.*—She was a good deal better, and working in the laundry, till three weeks before this date, when she left off, complaining of lassitude, weariness, and inability to work, and now only did a little knitting. She looked very weak, and stated she had not strength for anything; the slightest exertion brought on giddiness, and palpitation of the heart. The heart's action was accelerated, but the sounds were found to be normal in character. Her memory was exceedingly bad, as she had forgotten in a few minutes everything said to her. Her jaw had been slightly stiff after she became paralysed, and prevented her from opening her mouth easily. Her facial paralysis had almost disappeared, but a want of expression remained on the right side. The wrinkles were perfect on both sides of her forehead. The left pupil was a good deal dilated.

*October 13, 1873.*—For some time she had been very troublesome, excited, and quarrelsome. There was great inequality of the pupils; the left was the larger.

*November 23, 1873.*—Was very restless and excited. Complained of great pain in her head. The paralytic symptoms were very slight.

*May 23, 1874.*—Excitement had in a great measure subsided. She had complained for sometime of great pain in the right side of the face and head, especially in the region of the right coronal suture, where a bald patch—the size of the palm of the hand—existed, from her constant rubbing and scratching it. She also complained of pain in her right ear. The facial paralysis continued as before—that is to say, there was obliteration, to a certain extent, of the folds on the right side; the mouth was drawn to the left. The right pupil continued contracted, and the left dilated. There was no paralysis of the extremities.

On *February 16, 1876*, it was noted that during the previous month she complained of much pain in the right side of the head, and lately had kept in bed for some days, as she felt weaker. “She improved somewhat till last night, when the pain in her head became very acute; and this morning she got suddenly worse, and died with very little warning.”

For months her appetite had been poor and capricious. She constantly grumbled about her food and was difficult to suit with her diet. She was usually salivating, the saliva running from her mouth and the mucus from her nostrils. Her diet was mostly spoon-meat and fluids; and, when swallowing, the food often regurgitated through her nostrils. At no time was she observed to vomit. When out of bed she was very drowsy, and sat dozing for hours by the fire;—as she was extremely thin and reduced, she complained of feeling the cold acutely. In the ward she walked in a stooping posture, with a shuffling, lazy gait; but there was no evidence of special paralysis of any of the limbs. When roused out of her sleepy condition she understood all that was said, and spoke intelligently even to the last, and often showed an irritable and peevish disposition.

Dr Major believed she had an intra-cranial tumour that produced the constant irritation and annoyance which made her rub and scratch the side of her head all day long. At his request I made a minute examination of her eyes with the ophthalmoscope on 6th October, 1875. Her vision with the left eye was found to be good; but she stated she could see nothing with the right eye; she could not even perceive the glare of light from the mirror.

There was very marked external squint of the right eye, but no ptosis. The pupil was contracted and fixed; the iris was unaffected by atropine, and appeared to be adherent to the front of the lens—probably the result of former iritis. The margin of the optic disc was clearly defined and very slightly irregular in outline, but of the usual size and colour. The retina and choroid appeared normal; there was no exudation, hæmorrhage, or alteration of pigment. The main trunks of the retinal arteries were about half the calibre of those of the corresponding veins: the arteries were much smaller, and the veins somewhat larger, than in the normal condition. No pulsation could be detected in the veins, and the vessels did not get lost to view in any part of their course, or knuckle over the edge of the disc.

In the left eye the pupil was normal, and dilated readily with atropine. The media in both eyes were perfectly clear, and the fundus of the left eye presented much the same appearance as that of the right. The optic disc was more even in outline than the right. The retinal arteries were very much smaller than the veins, although not quite so small as in the right eye. There was seen at the outer margin, by direct examination of the disc, a very small patch of choroidal pigment. Both discs were round and shewed physiological cupping. No portion of any of the vessels or fundus was hid by effusion, and neither the retinæ nor discs showed any cloudiness, nor was the lamina cribrosa seen. The number and distribution of the vessels in both eyes were normal; the disc, retina, and choroid in each eye were of the normal hue, and did not seem to be starved of blood supply.

Eight days before she died I examined her eyes again, and found them both still in exactly the same condition as described. On both occasions she walked about two hundred yards, without difficulty, to the room where I examined her eyes, and she was intelligent enough to look in any direction I asked her when under examination.

Excluding the state of the pupils, it was difficult to account for the vision of the left eye being good while that of the other had gone, as the one showed no more atrophy of the nerve or retina than the other, and their condition was so much alike in other respects. While the very remarkable appearance of the circulation could only be accounted for by some mechanical interference—as pressure by a tumour—near both eyeballs, but not enough to produce visible disorganization.

She died at 9.35 A.M. on Feby. 16th, 1876, and *post mortem* examination was made 55 hours after, the weather being mild. The body was extremely emaciated, reduced to skin and bone, with entire disappearance of the subcutaneous fat. Rigor mortis was present in the lower extremities, but was passing off in the upper. The skin was very pale. There were no external bruises or marks of injury, and no hypostatic discolouration. The skull was rather thin, of average density, and quite symmetrical. The meningeal channels were deep. The dura mater was slightly adherent to the skull on the right side; it was not thickened; the sinuses contained dark fluid blood. On removing the dura mater the convolutions of the right cerebral hemisphere were at once seen to be flattened and compressed, with slight flattening of the gyri of the left side of the brain also.

On removing the brain a large, irregularly shaped tumour was found occupying the right temporo-sphenoidal fossa. The tumour was intimately connected with the dura mater, and was adherent to the bone; it was also intimately attached to the under surface of the right temporo-sphenoidal lobe, which was found softened and broken down to the extent of three inches. The tumour was about two inches in breadth. The posterior portion of the orbital lobule had

been subjected to some compression. The island of Reil, on right side, had been subjected to great compression, and was found considerably atrophied. It was, however, the substance of the inferior temporo-sphenoidal, and of the uncinatè gyrus that was chiefly involved in the tumour. The substance of the tumour generally was hard, white, and glistening, and creaked under the knife, but where it came in contact with the grey substance of the brain, it was gelatinous, and presented numerous round cysts; it was found to surround the right optic nerve; it passed completely into the right orbit, and pressed also on the contents of the left orbit; it also involved the ethmoid bone, dipping down into its cavities.

The whole brain, without the tumour, weighed  $43\frac{1}{2}$  ounces.

The tumour weighed 2 ounces 7 drams.

There was no thickening or cloudiness of the arachnoid. The pia mater was not thickened, and could be stripped freely from the flattened convolutions.

The pericardium contained about two ounces of straw-coloured fluid. The heart weighed 8 ounces  $15\frac{1}{3}$  drams. The left side was contracted, but contained some dark clots, the walls were slightly thickened. The valves were competent.

The right lung weighed  $28\frac{1}{4}$  ounces, and the left 19 ounces 14 drams. There were a few small tubercular nodules scattered through the substance of both.

The liver weighed 21 ounces 3 drams. Its capsule was thickened, but it was otherwise normal.

The spleen weighed  $6\frac{3}{4}$  ounces. It was very firm, its trabeculæ were hypertrophied.

The right kidney weighed 3 ounces 9 drams, the left 3 ounces 11 drams. The capsules of both were slightly adherent and their cortical substance was a little pale and wasted.

The uterus contained in the structure of its fundus a tumour about the size of a walnut, of a fibroid appearance; it was whitish, and cut with a creak; the tumour at its lower surface was ulcerated. There was a small tumour of the same consistence and the size of a pea, below it in the body

of the uterus, and one also in the right ovary similar to the latter in size and appearance.

In this Asylum, with over fourteen hundred patients, and a corresponding death-rate, with an autopsy after every death, tumours of the brain, or its membranes, are very rare. Leaving hæmorrhages, arachnoid cysts, and serous effusions out of consideration, *gross* disease of the brain is very uncommon, and according to my observation a per centage per annum of one case in the hundred deaths would more than cover all the cases of intra-cranial tumour which occur, and is a very small factor in the production of insanity. Judging from the number of reported cases of such tumours, they seem to be more common in general than asylum practice. Occasionally, at post mortems in ordinary practice, intra-cranial tumours are found when their presence during life was unsuspected and the sanity of the patient undoubted.

As this tumour was found to be cancerous, it is scarcely probable that it had anything to do with the patient's form of insanity, which began when she was 19 or 21 years of age, and recurred two or three times.

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VII.—CLINICAL SURGICAL REPORT FOR THE YEAR ENDING 30TH APRIL, 1876.

By GEORGE BUCHANAN, M.A., M.D., *Professor of Clinical Surgery in the University of Glasgow.\**

DURING the twelve months to which this paper refers, the following is a statement of the cases admitted:—

	Total.	Cured or relieved.	Died.
Male Ward, ... ..	213	202	11
Female Ward, ... ..	114	106	8
	<hr/> 327	<hr/> 308	<hr/> 19

\* Compiled from the Hospital journals, by Archibald Brown, M.B., formerly House Surgeon.

A mortality of 1 in 17. Sixty-five cases were treated as outdoor patients.

*Operations.*—During the year 89 operations requiring the administration of chloroform were performed—with 6 deaths—a mortality of 1 in 15. Of these, 10 were major amputations, including 4 of the thigh, with 1 death.

I am quite aware that no conclusion of any value can be drawn from mere statistical compilations, and notably none from records of comparatively small numbers; still, records by the same surgeon after a series of years mount up, till in the end they become of some statistical value. The particulars of the operations are sufficiently noted in the tables, with the exception of the following:—

*Staphyloraphy.*—David S., aged 22, was admitted with a congenital cleft in the hard and soft palate. The defect was remedied by Langenbeck's method of operating—the deficiency in the hard as well as the soft palate being completely filled up, with the result of a great improvement both in speaking and swallowing.

*Excision of the Tongue.*—James B., aged 41. Admitted 12th July, with epithelial cancer invading the anterior half of the tongue. It began in the usual way on the left side near the tip, but instead of extending backwards on the same side, as is most frequently the case, it crossed to the right side and implicated the anterior part. As neither the floor of the mouth nor the glands below the chin or jaw were affected, I resolved to remove the tongue.

I did the operation by dividing the lower jaw, nearly as first performed by Mr Syme, but used the *écraseur* to divide the tongue in front of the epiglottis. No hæmorrhage occurred, and the patient made a rapid recovery.

The cases admitted to my Wards which proved fatal were as follows:—

#### RECORD OF FATAL CASES.

1. Mrs G., aged 50. Admitted May 6, with ovarian tumour. On the 7th of May paracentesis was performed at three places, as the tumour seemed to be composed chiefly of three cysts. Ovariectomy was performed on the 19th. On the



day after the operation the temperature had risen to  $101.4^{\circ}$ , while the pulse was 114, no other symptoms of import being manifest. The temperature, however, gradually rose until the 23rd, on the afternoon of which she died. Other symptoms indicative of peritonitis had also set in: severe pain, distension of the abdomen and embarrassment of the breathing being present, together with delirium.

2. M. D., aged 32. Admitted May 29, with polypus of the uterus. The tumour was removed on the 31st by means of the cerascur. On June 2 she died, the temperature having risen to  $102^{\circ}$ , and the pulse to 150. Delirium, pain and distension of the abdomen became marked symptoms before death.

3. D. M. K., aged 15. Admitted May 31, with disease of ankle-joint and caries of tarsal bones. The foot was amputated on the 9th of June by Syme's method. After the operation severe vomiting set in, which persisted in spite of all treatment. He fell into a very exhausted condition, and died on 13th June.

4. M. A. D., aged 17. Admitted June 8, with disease in metacarpal bones. The necrosed portions were removed on the 14th, but on the 18th an attack of erysipelas set in, and on the 22nd she died exhausted.

5. P. L., aged 70. Admitted June 25. Died on the 26th. The exact nature of his injury was not known, as he had been found by the police insensible. It was ascertained that he had previously been subject to fits of some kind. On admission he was in a state of collapse. He died in a comatose condition.

6. J. J., aged 21. Admitted 27th June, with a very extensive wound of the scalp. On July 2nd, symptoms of erysipelas set in, which gradually became more severe, until the 6th, when he died.

7. W. J., aged 46. Admitted 12th July with vesical calculus. Patient's general health was in a low condition. With his urine he passed a considerable quantity of blood; pus was also present in considerable quantity, and oxalates formed a copious deposit. A day or two after admission, it was obvious that his general health was becoming seriously

affected. He suffered great pain up till his death, on July 18th, no operation having been performed.

8. G. H., aged 40. Admitted September 24th, with a compound comminuted fracture of thigh and arm, with—in both these situations—great destruction of the soft tissues. An attempt was made to make the wounds antiseptic. This was successful in the case of the arm, but not in the thigh. The temperature gradually rose to 103°. Patient became delirious, and sank into an asthenic state, in which he died, on the 2nd October.

9. W. P., aged 55. Admitted October 6th, with vesical calculus. Some pus in the urine, which, however, gradually improved. Lithotomy was performed by the rectangular method, and a mulberry calculus, the size of a small walnut, removed. Patient appeared to be going on well till the third day, when his temperature rose; his breathing became hurried, and he had several rigors. He died exhausted on the 14th October. On *post mortem* examination, an old putrid abscess was found leading from the neck of the bladder into its walls. Pyæmic deposits were found in the liver and lungs.

10. Mrs T., aged 56. Admitted 3rd December, with strangulated femoral hernia. She was operated on shortly after admission. Died of peritonitis on the 5th December.

11. Mrs T., aged 65. Admitted 28th December, with a burn, not of a very extreme nature, but accompanied with a considerable amount of shock. Patient, who, on admission, appeared to be a very weak woman, gradually sank, and died on the 6th of January.

12. W. M'L., aged 38. Admitted 7th February. While at his occupation, as a window-cleaner, he over-balanced himself, and fell to the ground. On admission he was found to have received an extensive wound of the forehead. The pericranium was untorn, although exposed, and no fracture could be detected, notwithstanding the careful examination which was made. From the subsequent symptoms which were developed, it was inferred that the brain must have sustained a severe lesion. His condition from

the period of admission until shortly before death was extremely excited and irritable; delirium, sometimes of a marked character, occurring chiefly at night. Before death he fell into a comatose condition; his temperature then being 103°. He died on the 11th February.

A *post-mortem* examination was made. There was found to be a rupture of the kidney, with great infiltration of blood into the surrounding tissues. The external table of the frontal bone was fractured in the arc of a circle, extending from one superciliary ridge to the other. A laceration of the brain was discovered on the right orbital surface. Both occipital lobes were lacerated, but especially the right. There was some blood in the cavity of the archnoid.

13. M. R., aged 24. Admitted February 17th. A domestic servant, who, while standing outside a window on the third floor of a house, for the purpose of cleaning it, fell to the ground, and sustained, in addition to external injury, internal injuries the exact nature of which could not be diagnosed during life. There was a dislocation of the arm bones backwards, and a fracture of the pelvis near the symphysis. The former was easily reduced in the state of shock under which she laboured. Warmth was applied to the surface of the body, and small quantities of brandy were administered frequently, but with no effect as regards the restoration of heat and strength. Her lips and face were pallid, and her general condition quite prostrate. From the persistence of this condition it was suspected that internal bleeding was going on. She died at eight o'clock, five hours after admission.

On a *post-mortem* examination being made, the spleen was found to be ruptured, and thus to have given rise to bleeding, to a very considerable extent, in the cavity of the abdomen. The pelvis was fractured near the symphysis.

14. J. M'N., aged 28. Admitted 24th March. While engaged at work several beams of wood fell on his shoulders, doubling him forwards. When brought to the hospital it was found that he had sustained a fracture of the spine at

the twelfth dorsal vertebra, there being at this part a decided angular curvature. The lower limbs were paralysed. Patient died on the 31st. At the *post-mortem* examination the cord was found to be completely lacerated at the seat of fracture.

15. J. M., aged 44. Admitted 27th March. Having attempted, while in a state of intoxication, to sit on the parapet at Kelvin Bridge, he fell over, and thus sustained the injuries from which he suffered. On admission he was in a state of concussion. A fracture of the skull was detected, extending from the external angle of the orbit upwards, along the temporal ridge. An hour or so after admission, when he had recovered from the shock, he displayed great irritability, and even became violent, continuing in this state until the following morning. He then fell into a comatose condition and died.

At the *post-mortem* examination no injury to the brain could be discovered. The intestine was ruptured, and some adhesions, due to resulting peritonitis, were seen. The liver also was ruptured to a slight extent.

From the foregoing statement it will be seen that several of the cases were moribund on admission.

I would call attention to those cases in which rupture of internal organs was caused without wound of the containing cavity, viz., the liver, the spleen, the kidney, and the intestine. They are sufficiently detailed in the obituary notice.

TABLE OF OPERATIONS BY PROFESSOR GEORGE BUCHANAN,  
FROM 1ST MAY, 1875, TILL 1ST MAY, 1876.

Nov. 13, 1875	W. C.	aged 23	Caries	- - - -	Flap from hand -	-	Successful	-
<i>One Amputation at Wrist.</i>								
<i>Six Amputations of Fingers—All Successful.</i>								
<i>Four Amputations of Thigh.</i>								
May 25, 1875	J. M.	aged 24	Smash of femur and knee	-	Amput. at middle of thigh,	Successful	-	-
July 29, "	R. T.	" 40	Gangrene from embolism	-	Carden's amputation	"	-	-
Sep. 2, "	J. M.	" 20	Disease of knee joint	-	"	"	-	-
Apr. 24, 1876	W. T.	" 12	" ankle and knee joints	-	"	"	-	-
<i>One Amputation of Leg.</i>								
Dec. 1, "	T. M.	" 12	Caries of tibia and ankle joint	-	Lower third of leg	-	Successful	-
<i>Four Amputations at Ankle.</i>								
June 9, 1875	A. M.K.	aged 15	Caries of tarsal and metatarsal bones	Syme's	-	-	Death	-
July 26, "	W. W.	" 17	" foot	"	-	-	Successful.	-
" 18, "	M. M.G.	" 17	" of tarsus	"	-	-	"	-
Feb. 26, 1876	A. M.D.	" 7	Disease of ankle joint	-	"	-	"	-
<i>Twelve Excisions of Joints.</i>								
May 24, 1875	G. B.	aged 12	Disease of elbow joint	-	Excision of elbow	-	Successful	-
" 26, "	C. M.I.	" 3	"	"	" (right)	-	"	-
June 30, "	A. M.	" 21	"	"	"	-	"	-
July 27, "	E. M.	" 13	"	"	"	-	"	-
Sep. 19, "	C. M.I.	" 3	"	"	" (left)	-	"	-
Nov. 24, 1876	M. E.	" 7	"	"	"	-	"	-
Dec. 15, "	K. W.	" 8	"	"	"	-	"	-

Obstinate vomiting.

Feb. 5, 1876	J. H.	aged 25	Disease of elbow joint	-	Excision of elbow	-	Successful
Mar. 20, "	D. M.	" 7	"	"	"	"	"
Apr. 25, "	J. G.	" 10	"	"	"	"	"
Aug. 26, "	S. L.	" 11	" knee joint	-	" knee	-	"
Oct. 8, "	M. M'G.	" 27	" ankle joint	-	" astragalus	-	"
<i>Thirteen Excisions of Bones.</i>							
May 4, 1875	A. S.	aged 23	Necrosis of phalanx of thumb	-	Sequestrum removed	-	Successful
June 14, "	M. D.	" 17	" 4th metacarpal bone	-	Removed	-	Death
Aug. 3, "	T. Y.	" 11	" jaw	-	Sequestrum removed	-	Successful
" 9, "	J. H.	" 12	" os calcis	-	Gouged 11th Oct., excised,	-	"
Oct. 9, "	T. W.	" 11	" 5th metatarsal bone	-	Excised	-	"
Nov. 16, "	C. B.	" 5	" metacarpus	-	Sequestrum removed	-	"
" 16, "	T. M.	" 12	" Caries of tibia	-	Gouged	-	Subsequently amputated.
Dec. 24, "	J. A.	" 16	" Disease of nasal bones	-	Removed	-	Successful
Jan. 17, 1876	D. K.	" 13	" Necrosis of end of radius	-	Sequestrum removed	-	"
Mar. 16, "	J. G.	" 4	" "	-	"	-	"
" 28, "	A. M'G.	" 15	" Sequestrum in jaw	-	"	-	"
" 29, "	J. G.	" 3	" Necrosis of 1st metatarsal bone	-	Excised	-	"
Apr. 1, "	J. S.	" 5	" 5th metacarpal bone	-	"	-	"
<i>Excision of Mamma.</i>							
Feb. 5, 1876	A. M.	aged 54	Chronic mammary tumour	-	Excised	-	Successful
<i>Lithotomy—Two Cases.</i>							
June 16, 1875	R. P.	aged 31	Stone in bladder	-	Rectangular staff	-	Successful
Nov. 6, "	W. P.	" 54	" "	-	"	-	Death
<i>Ovariectomy.</i>							
May 19, 1875	Mrs G.	aged 50	Ovarian tumour	-	-	-	Death
<i>Hernia—Two Cases.</i>							
Oct. 8, 1875	Mrs C.	aged 62	Femoral hernia strangulated	-	Sac opened	-	Successful
Dec. 5, "	Mrs Y.	" 54	" "	-	"	-	Death
<i>Old abscess in walls of bladder</i>							
<i>Peritonitis.</i>							

		<i>Ligature of Artery.</i>			
Jan. 12, 1876	J. N.	aged 27	Lacerated wound of radial	Tied above and below	Successful -
<i>Tenotomy—Seven Cases.</i>					
May 1, 1875	J. P.	aged 4	Talipes varus	Tenotomy	Successful -
" 8, "	R. D.	" 43	Contraction of palmar fascia and tendons	Divided Tenotomy	Improved Successful -
Nov. 12, "	A. M.	" 6	Talipes varus	"	Improved -
" 16, "	S. M.C. H.	" 8	" equino-varus	"	Improved -
Dec. 22, "	C. H.	" 4	Disease of knee joint and contraction of tendons	"	Successful -
Feb. 14, "	J. J.	" 7	Disease of knee joint and contraction of tendons	"	" -
" 24, "	J. C.	" 6 mo.	Double talipes varus	"	" -
<i>Six Fistule—All Cured by Incision.</i>					
<i>Six Abscesses, Large, and One Sinus—Cured by Incision.</i>					
<i>Hydrocele.</i>					
Jan. 11, 1876	F. M.G.	aged 28	of 2 years	Tapped and injected	Successful -
<i>Removal of Testicle.</i>					
Apr. 15, 1876	H. L.	aged 38	Fungus	Removed	Successful -
<i>Circumcision.</i>					
Aug. 26, 1876	W. T.	aged 18	Warts on prepuce	Circumcised	Successful -
<i>Two Dislocations.</i>					
May 15, 1875	P. K.	aged 30	Dislocation of femur on dorsum	Reduced successfully by manipulation	Successful -
Apr. 6, 1876	Mrs W.	" 55	" elbow	"	Successful -
<i>One Varus on Lip—Successfully Excised.</i>					

*Resection of Bone.*

Feb. 28, 1876	J. H.	aged 13	Un-united fracture of thigh -	Ends of fragments removed -	Successful -
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*Excision of Tongue.*

July 24, 1875	J. B.	aged 41	Epithelioma -	Entire tongue removed	Successful -
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*Five Harelip, and Cleft Palate.*

June 12, 1875	T. W.	aged 1	Harelip -	-	Successful -
Jan. 15, 1876	A. W.	" 1	" -	-	" -
Apr. 10, "	W. J.	" 10	" -	-	" -
Aug. 3, "	P. M'K.	" 4 mo.	" -	-	" -
Dec. 23, "	D. S.	" 22	Cleft palate, hard and soft	Staphyloraphy -	" -

*Six Excision of Tumours.*

May 24, 1875	M. M'I.	aged 24	Dermoid cyst -	Excised -	Successful -
" 31, "	M. D.	" 32	Fibroid polypus of uterus -	" -	Death -
Aug. 10, "	A. C.	" 30	Tumour on leg -	" -	Successful -
" 14, "	Mrs T.	" 43	Uterine polypus -	" -	" -
Sep. 9, "	J. A.	" 45	Sarcomatous tumour on leg	" -	" -
Feb. 9, "	W. M.	" 43	Syphilitic tumour on leg	" -	" -

*Cheilo-Plasty.*

June 18, 1875	A. M'K.	aged 68	Epithelioma of lip	-	Successful -
Dec. 9, "	A. M'T.	" 70	" lip	Excised	" -
Apr. 22, 1876	A. S.	" 60	" lip	"	" -
			Foreign body in mastoid process -	Removed -	" -



## VIII.—ON A NEW FORM OF PARASITIC SKIN DISEASE, PREVALENT IN FIJI.

By WILLIAM MACGREGOR, M.D., *Chief Medical Officer, Fiji.*

*To the Honourable Sir Arthur Hamilton Gordon, K.C., M.A., Governor of Fiji, &c., &c.*

YOUR Excellency will recollect that almost immediately after my arrival in Fiji, in the month of July last, I had occasion to bring under your notice the existence of a new parasitic skin disease, prevalent amongst the foreign labourers in this colony.

The disease, coming under my observation then for the first time, and being, so far as I know, undescribed, I was unable to advise your Excellency how far the existence of the malady should influence the Government agent, when recruiting labourers, in rejecting persons afflicted with it.

Having had several cases of the disease under observation during the past five months, I am now in a position to furnish you with more definite information respecting it.

It is met with among the foreign labourers from the Solomon Islands, the New Hebrides, and Lime Islands. In my experience it does not occur among the Europeans resident here, nor among the Fijians.

Like ordinary tinea circinata it extends round about the original patch in all directions; but, unlike that disease, while the circumference of the circle extends, the centre does not clear up. The most peculiar of its non-microscopic characters, is, its method of extension. It does not extend like ordinary ringworm, by an uninterrupted invasion of the epidermis round the circumference of the growing patch, nor like tinea versicolor, from rain-drop like centres; but, starting from the edge of the affected part, the first appearance of enlargement is seen about one-fourth to one-eighth of an inch from the original border, gradually, at this point, the upper layer of the epidermis begins to curl over, and slowly folds itself up like a scroll, turning away towards the healthy skin, and leaving a line of apparently

healthy epidermis, about an eighth of an inch broad, between the last previous roll of cuticle and the place where the cuticle began to turn over to form the new one. This manner of enlargement gives to a patch of the disease the appearance of being composed of wavy lines, or irregular concentric rings.

When the disease is progressing on the patient's back, the furrows of epidermis at the extending edge usually run a more or less wavy course, uninterrupted and unbroken from side to side. The older furrows break into shorter pieces, often about an inch, or an inch-and-a-half long, and many of the pieces fall off. In this stage the appearance of the patient is sometimes very striking, the skin seeming to be covered by a sort of fantastic arabesque work, as is well seen in the accompanying photograph, from a new arrival in September last. In very old cases the arabesque pattern disappears, the rolls of cuticle became very irregular, and the skin has pretty much the appearance of a new potato boiled in the skin, or of the epidermis falling off a young birch tree. In the oldest class of cases I have seen, the skin is exceedingly harsh and dry, feeling, under one's finger, almost like a piece of dried shark's skin. In these cases the cuticular rolls have all disappeared, but in many places their outline remains visible from the difference in colour: the lines of unaffected cuticle remaining darker in colour than those parts from which the cuticle was turned off: the latter are also lower than the former, and they are terminated by a sharply defined edge, as if the line of depressed skin had rusted out.

In no stage of the disease, either at the extending edge or elsewhere, is there any appearance of a papular or vesicular eruption, but the cutis is often seen congested, and sometimes the patient's temperature, in an advanced case, is a little over the healthy figure. Occasionally a little itching is complained of, but it seems to be inconsiderable.

The disease is often seen covering the entire trunk and limbs. I have seen it cover the whole body as high as the mouth, extending half way across the cheeks, over both

ears, on the tip of the nose, but not over the scalp nor round the eyes. Only one person appeared to have the disease on the scalp. In that case the hair was thin, and about an inch to two inches long, of its natural colour, and not easily unrooted, whilst between the hairs were small white crusts; but under the microscope I could not find the mycelium of the fungus in these crusts, although it was plentiful in the cuticular rolls on the patient's neck.

The microscope shows that the disease depends upon the presence of a parasite of a vegetable nature.



Fig. 1.

The figures have been all drawn by Dr David Foulis without the aid of camera lucida. Hartnack Eyep. 6; Obj. 9.

Average size of tubes and spores,	-	-	-	$\frac{1}{8000}$ inch.
Diameter of head in fig. 3,	-	-	-	$\frac{1}{330}$ "
" of bulb in ,,	-	-	-	$\frac{1}{1700}$ "

The fungus is best seen by spreading out a small roll of the cuticle in caustic soda, and leaving it a few hours in the alkali before examination. It consists of long uniformly slender filaments. They are much longer, straighter, and less branched than the mycelial threads of *tinea versicolor*, and there is the absence of the masses of large ovoid spores of the latter, so that the two parasites cannot be confounded.

The filaments are much more abundant than in *tinea circinata*, and the spores smaller and less numerous.



Fig. 2.

The filaments always follow a curved, or slightly zigzag, nearly straight course, many of the threads running quite beyond the field of the microscope without branching or communicating with another thread. Sometimes a thread is

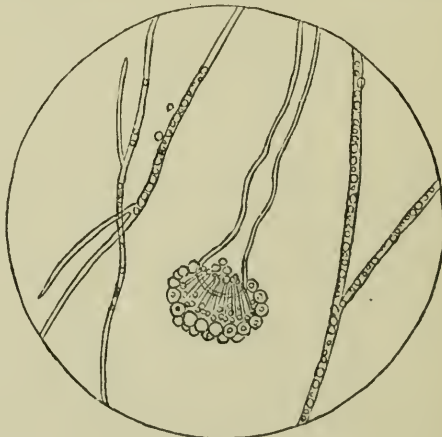


Fig. 3.

seen to subdivide or give off a branch or two, and they are often seen to terminate in a sharp clean cut extremity, as if broken straight across.

They present dark bounding lines, with a transparent centre, but under a high power the thread seems to be a tube, and many small granules of a circular form are sometimes seen forming a central dotted line, which seems to consist of the spores. In some rolls of cuticle the threads are sparse and disconnected, but in other rolls they are so numerous as to appear like a close web or network, crossing and re-crossing each other in all possible directions, several superimposed layers becoming visible on focusing.



Fig. 4.

The fungus, although differing in appearance from all others with which I was previously acquainted, as attacking the skin has, nevertheless, much resemblance to the mycelial threads of the *oïdium albicans*, only that the spores of the latter are, I think, larger; but I have had no opportunity of comparing the two together, and have no micrometer by me at present to make actual measurement of this parasite, for purposes of comparison. But the *oïdium albicans* I have met with only in the mouth and never on the external skin, whereas the parasite under consideration attacks only the outer skin and is not seen in the mouth.

The disease is very chronic in its course, and is no doubt contagious. It seems to take the place of *tinea versicolor* and of *tinea circinata* on those Islands where it occurs.

The immunity of the Fijians may seem strange. I have never seen it on one of them ; but, instead of it, tinea versicolor is common. The habit of the Fijians, of frequently rubbing the body with cocoa nut oil, is inimical to the propagation of these parasites on the skin, but this habit does not seem to be very common among the foreign labourers.

The treatment I have tried, which has been based on the true pathology of the disease, has been usually the sulphur ointment of the British Pharmacopœia, with frequent prolonged washings in warm water with soft soap. This treatment, as a rule, improves the patient in a few days, but several weeks are necessary to effect a cure even in a mild case, and often some mercurial preparation must be applied, especially if the case is chronic. In chronic cases the treatment is not very satisfactory.

As the disease is certainly contagious, and must, in the advanced stages, more or less, affect the patient's health from the changes it produces in the skin, and as at least several weeks' treatment is necessary to obtain a cure, recruiting agents should, *ceteris paribus*, not select people suffering from this disease ; but they might be engaged in the event of a scarcity of labourers ; and, if so engaged, should be sent to hospital for treatment immediately on being landed here, both to improve their own condition and to guard against contagion.

[*Note.*—This communication is in the form of an official report from Dr Macgregor to the Governor of Fiji, and we have thought it best to let it stand as it was forwarded to us, without subjecting it to any alteration whatever. It was accompanied by portions of the cuticular rolls described in the report, and by a photograph of the thighs of a native affected with the disease. From the former of these the drawings of the fungus have been made, but the latter has unfortunately been lost, and can only be replaced by communicating with Dr Macgregor, a proceeding which occupies many months. The fungus was exhibited at the Pathological and Clinical Society of Glasgow, and a committee was appointed to report on its nature, and the relation of the affection to other forms of parasitic skin disease. We hope in a future number to publish the report of the committee, together with a photograph, if we are able to obtain such from the author of the paper.—ED. G. M. J.]

## IX.—CASE OF PERNICIOUS ANÆMIA, WITH FEBRILE SYMPTOMS, PROVING FATAL THREE MONTHS AFTER DELIVERY.

By JAMES GOWANS, M.B., *Resident Assistant at the Glasgow Western Infirmary.*

Mrs D., æt. 22, was admitted on April 22nd, 1876, to the Glasgow Western Infirmary, under the care of Dr Finlayson, in a very anæmic condition, complaining of weakness, slight cough, and occasional vomiting.

She belonged to a healthy family, and until the commencement of this illness had enjoyed fairly good health. At the age of 16 she suffered for some time from pain in the right side of the face, and shortly before her marriage there had been some suppression of the menses. Married when 19, she had a pretty severe illness after her first confinement, the child being premature and still-born, but during her second pregnancy she was remarkably well, and was safely delivered at term in February, 1875. At the commencement of her third pregnancy she had a severe sickness, but recovering, was able to work at the sewing machines till within two months of her confinement, when she lost her appetite and began to loathe food, but there was not much vomiting. During the last three weeks of her pregnancy she was still further prostrated, by the occurrence of severe diarrhoea. She was confined in February, and the delivery was not complicated by flooding or other accident, but the want of appetite with occasional sickness continuing, and the weakness increasing, she was admitted into the Glasgow Western Infirmary, seven weeks after her confinement.

Her condition on admission was that of extreme anæmia, the skin and mucous membranes being very pale, somewhat waxy looking, and without any discolouration. She complained of great weakness, noises in her ears, and occasional palpitation and dimness of vision. On examination of the various organs, no cause was found to account for this. The lungs were quite normal, and the slight cough she had complained of did not trouble her after admission. At this time no cardiac murmur was heard, and there was no increase

of the precordial dulness. The urine was of fair quantity, of good specific gravity and colour, and contained no albumen. Careful inquiry failed to elicit any history of hæmorrhages of any kind. After admission there was a progressive increase of the anæmia; and a pulsation in the epigastrium and a venous hum in the neck, which were present on admission, became more marked. A cardiac bruit of a soft, blowing character, following the first sound, and heard best about mid-sternum and over the right ventricle, began to be heard occasionally soon after admission, and afterwards became permanent. The noises in the ears increased and were accompanied by throbbing in the temples, while a feeling of "want" with some tenderness in the epigastrium were bitterly complained of, but were not accompanied by coffee-ground vomiting, or the presence of blood in the stools. A trace of albumen, found in the urine on several occasions, was found to be associated with pus, and was probably partly of vaginal, but partly also of renal or vesical origin. The spleen and liver were normal, the latter perhaps slightly enlarged; there was no enlargement of the lymphatic glands, and no increase of the white blood corpuscles could be detected, though several examinations were made. No serious uterine affection existed. After admission the vomiting became gradually more severe, and necessitated the stoppage of various preparations of iron, &c., which had been prescribed. Various attempts were made to control the vomiting by bismuth, carbonated waters, and changes in the diet, and stimulants also were ordered, but as all these failed, and as the severity of this symptom became such that even ice and cold water were rejected, nutrient enemata of Liebig's cold beef juice, with hydrochloric acid, mixed with two grains of *pepsina porci* and a little brandy, were commenced on May 23rd. For the first few days the injections were retained, and this treatment was followed by some improvement in the general condition, the vomiting almost ceasing, the pulse becoming fuller, and the strength greater. The injections, however, began to be voided almost immediately after being given, and the vomiting returning, the patient gradually sank, and died on the morning of June 1st. There was a consider-



able amount of fever during the time she was in the Infirmary, the mean morning temperature for the whole of this period being  $100^{\circ}.6$ , Fah., that of the evening  $101^{\circ}$  Fah., but this high temperature was not quite uniform, a considerable diminution during the week preceding death being especially marked. A short time before death the temperature in the rectum was  $92^{\circ}$  Fah. At the *post-mortem* examination, a small quantity of clear fluid was found in the pericardium. The heart was slightly enlarged, and weighed 12 ounces, the muscular substance of the left ventricle shewing at some points most highly developed fatty degeneration, present in its most aggravated form on the muscular trabeculæ, whose surface presented a most characteristic mottling, but it existed to a less extent also on the general surface of the ventricle. On dividing the muscular trabeculæ the mottling was observed to extend throughout their substance. In the general substance of the ventricle the condition also extended to some depth. The muscular substance of the right ventricle was pale, but on only two or three muscular trabeculæ were a few yellow spots visible. The tricuspid orifice was much dilated, admitting six fingers; the mitral admitted three. The lungs were non-adherent, and remarkably healthy, but considerably œdematous posteriorly. The stomach and intestines were normal, except some patches of redness and a little excoriation towards the lower end of the large intestine (possibly due to the injections). The liver was enlarged, and weighed 3 lbs. 10 ozs. It was of a peculiar yellowish-brown colour, opaque yellowish markings being visible at parts. The pancreas presented isolated and limited patches of redness. The spleen was slightly enlarged, otherwise normal. The kidneys were rather large and pale, the supra-renal capsules were normal. The uterus was normal, except that a slight erosion existed at the os. Examined microscopically, the affected parts of the heart were found to be in a most extreme state of fatty degeneration, many of the oil drops being larger than are generally found. The liver presented, in addition to a local fatty infiltration, a generalised fatty or granular degeneration of the hepatic cells. The kidneys presented a limited amount of fatty degeneration, but without evidence of any active process going on in the epithelium. An

injected kidney shewed an imperfect filling of the arteries with blood.

REMARKS BY DR FINLAYSON.

In the *Glasgow Medical Journal* for October, 1875, I published a case which was diagnosed as one of pernicious anæmia, and in which fatty degeneration of the muscular fibre of the heart was pretty confidently predicted: the *post-mortem* examination verified this diagnosis, as also the existence of pericardial and endocardial disease, which had likewise been recognised during life, and of old peritoneal adhesions which had not been suspected. Complicated as it was, the case of that man was clearly one of pernicious anæmia.

The anæmic appearance of the woman whose case is now reported, was even more striking, and by a process of exclusion, the diagnosis of pernicious anæmia was arrived at with great confidence. Some hesitation was felt at first on account of the severe vomiting, but no evidence of gastric ulcer could be made out, and the case had not the aspect of malignant disease. The fatty degeneration of the heart was at least as great as in the case of the young man already referred to, and Dr Joseph Coats, who made the *post-mortem* examination of both, tells me that he has seldom or never seen such an extreme affection of the muscular fibres, whether judged by the naked eye or by the microscopic appearances. In both cases other organs were also more or less affected with similar fatty changes. Two points in the present case seem specially worthy of notice. (1) The occurrence of this pernicious anæmia in connection with pregnancy—an association often observed in this grave disease—and (2) the presence of a very persistent elevation of the temperature, which seldom fell below 100° F., and was often over 102° F. This febrile course, although not very common, has been met with in a considerable number, especially of the puerperal cases. In connection with these two points, see Lebert's very important article in the number of the *Archives Générales de Médecine* for April, 1876: "De l'anémie oligocythémie, dyshémie, de ses diverses formes et de son traitement;" and also Quincke's Lecture on Pernicious Anæmia in Volkmann's *Klinische Vorträge*. No. 100. May, 1876.

## Reviews.

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I.—VITAL MOTION AS A MODE OF PHYSICAL MOTION. *By* C. B. RADCLIFFE, M.D., &c. Macmillan & Co.: London. 1876.

THE work before us is essentially one of argument. With the exception of twenty-eight pages, which deal with historical matters, and eight pages of epilogue, it is filled with observation and proof. It is a book concerning which it is possible to say very much, but we shall rest abundantly satisfied if we are able to *indicate* the principles which the author *advocates*.

Stated in one word, he contends that the secret of vital motion is "inhibited action." This term has more than once fallen under the notice of physiologists. It was used by John Hunter to designate a power resident in the blood-vessels, and inhibiting the tendency of the blood to coagulate. Later, Pflüger attributed a similar power to certain of the visceral nerves, while Lister (proc. Roy. Soc. 1858) characterises it as "a startling innovation in physiology." In both cases, however, the word was used to express something which, save by a *word*, was inexplicable. Dr Radcliffe's position is very different; and the odium which is apt to attach itself to previously misused terms, will at once disappear when the case is plainly stated. He makes no endeavour to substantiate the existence of a state "contrary to nature." He simply depicts the antagonism between the natural physical state of a body, and the state of the same body under the influence of a well-known undulatory force—electricity.

The argument is stated in two parts—Firstly, there is a physiological proof; and secondly, a pathological concurrence.

So much of the physiological proof as we desire to indicate at length relates to the behaviour of muscle. In this structure we have to deal with cell walls, and molecular cell contents—the cell contents being liable to the natural law of molecular attraction. In antagonism to this law stands that of electrical repulsion in similarly charged bodies. Granted these two laws, we are provided with conditions under which the molecules will be collected or dispersed, and the direction of their dispersion will be ruled by their surroundings—the sarcolemma. Molecular attraction being the primary law, the natural state of muscle should be contraction. We therefore require at our author's hands proofs on the following points:—

That muscle, in its natural state (*i.e.*, when free from all electricity, except such as is common to terrestrial bodies) is contracted.

That relaxed muscle contains special electricity.

That this electricity is lost when contraction takes place.

That means exist by which such electricity can be replaced before relaxation again occurs.

That it *is* so replaced.

Our first requirement is fulfilled in rigor mortis. The second, third, and fifth are supplied by observation, the fourth requires more detail. The means by which discharged electricity is replaced lie in the muscle itself. The surface of muscle is positive in relation to its section, that is, says Dr Radcliffe, the cell wall is positive in relation to the cell contents. These two latter, therefore, supply the material for an electro-motive element in open circuit, a condition which at once accounts for the state of charge and its reproduction after discharge. At a later period in the book it is shown that already relaxed muscle *elongates itself* when artificially surcharged with electricity.

Deferring any notice of the mode of discharge, observe how far this position alters our conception of muscular relaxation. It passes from a mere passive into an essentially active movement, the theory of power lost in overcoming antagonistic muscle disappears, and, most important of all, the diastole of the heart becomes an act of power. Without any definite basis in theory, some have previously hinted at the possibility of active cardiac diastole, but only in a timid and speculative way.

Very similar is the electrical history of nerve, both motor and sensory. There is, however, an interesting examination of the state known as electrotonus, the conclusion from which is, that it consists merely in the dissemination of free electricity from an imperfect conductor—an explanation more in accordance with Faraday's use of the term than the hypothetical speculations of recent physiologists.

Dr Radcliffe's summary of the effect of artificial electricity upon muscle and nerve, expresses his views as concisely as seems possible. He says:—"In a word, the ruling of the same law is discernible in all these cases, and the sum of the whole matter amounts to this, that the different forms of electricity—the Voltaic, the Franklinic, the Faradaic, and that which is natural to living substances—all agree in acting, not by polarization, or by any other working of the constant current, but by the charge or discharge of free electricity, the

charge (negative as well as positive, but not to the same degree) causing the state of rest, and with it more or less expansion, by keeping the charged molecules in a state of mutual repulsion, the discharge bringing about action, and with it the state opposed to expansion, by leaving the now chargeless molecules free to yield to simple molecular attraction" (p. 136).

This carries us forward to the work of the blood in vital motion. The experiments of Kussmaul and Tenner on the production of epileptiform convulsion, furnish him with a very stable basis from which to project his hypothesis. These experiments prove that convulsion results from deficient blood supply within the cranium. Otherwise stated, deficient blood supply means deficient electricity, and deficient electricity means muscular contraction. Then follows the further query, What in blood is necessary to maintain the proper standard of electrical charge? Oxygen. In the presence of an abundant supply of oxygenated blood, the work of the electromotive centres proceeds equably. Carrying the inquiry further, he finds that strychnia and such agents as produce convulsion interfere with the proper oxygenation of the blood; and then he adds, "The dark, half-oxygenated blood runs slowly through the capillaries."

While reading carefully this and the succeeding chapter, our attention was more than once arrested by the coincidence of due oxygenation with rapid movement. This coincidence suggested the question whether the movement of the corpuscles had a part to play in the maintenance of the electricity. The relations of the adhesive white corpuscle and the wall of the vessel are not very unlike those of the rubber and cylinder in the Franklinic machine. Again, the contrasted behaviour of the red corpuscles during circulation and during coagulation is not very unlike that of bodies charged with similar electricity and afterwards discharged, possibly by contact with foreign matter—the most recent theory of the cause of coagulation.

The work of the nervous system in vital motion may be epitomised as follows:—

The maintenance of an equable charge in nerve and muscle inhibits muscular contraction.

Whenever this charge is increased or diminished, instantaneous currents of high tension (extra currents, and induced currents) are produced, and discharge the static electricity, contraction resulting.

Constant centres of nervous action are the more highly electrified, and less likely to "run down" during the

lulls in the transit of the blood through them; the rhythmic centres less so.

An examination of various states of muscle—spasm, trembling, &c.,—introduces the subject of voluntary action. We had anticipated with great pleasure the approach to this subject, and were not a little disappointed to find it dismissed with the observation that, after a voluntary movement, the charge resident in quiescent muscle was found to have been discharged. Possibly, as Dr Radcliffe says, the dignity of the will is enhanced when considered as a power directing electricity, but that dignity would not have been infringed by a somewhat fuller consideration.

We have already said that the pathological argument is simply the indication of pathological concurrence. Trousseau's description of the true first stage of epilepsy—the death-like pallor, the coincidence of pallor and cold with shivering, and the opposition between inflammation or fever and convulsion, corroborate his views as to the work of the blood in vital motion. The convulsions of advanced Bright's disease he refers to deficiency in the corpuscular elements—an observation not without interest in its bearings upon some remarks in this notice. In one word, it seems that there is an antagonism between convulsion and an excited state of the circulation. Dr Radcliffe associates pallor of the surface with deficient blood supply to the viscera, but he evidently refers to rapid motion of the blood through their capillaries, and not to mere accumulation.

“Every word,” says he, “is in harmony with the notion that vital motion is merely a mode of physical motion, for which the only key needed is that which is supplied in the natural workings of electricity and elasticity” (p. 246). “The case is one in which molecular attraction is, for the time, overbalanced by electrical repulsion” (p. 248).

Towards this conclusion we have endeavoured to indicate his premises, and can only further assure the intending reader that he will find in their construction a mass of most interesting and instructive detail.

There are more typographical errors in the book than ought to exist in a work of high standard.

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II.—THE NATURAL HISTORY AND RELATIONS OF PNEUMONIA. A CLINICAL STUDY. By OCTAVIUS STURGES, M.D., F.R.C.P., *Physician to the Westminster Hospital*. London: Smith, Elder & Co. 1876.

No disease in the whole realm of medicine has attracted more attention than pneumonia; and within the last forty years the elaboration of its symptomatology and pathology has given it a completeness almost unique among diseases. It has owed its prominent position, to a large extent, to its having been selected as the perfect type of an acute inflammatory disease, and as the battle-ground on which the anti-phlogistic method of treatment was to have its merits fairly decided. Out of the conflicting opinions which have gathered round it, a picture has been drawn, imperfect, it is true, and in many points yet wanting confirmation, but still with its leading features so well defined as to render it tolerably complete. Pneumonia is essentially a "representative disease;" and its careful study yields more than a mere catalogue of symptoms and remedies, opening out as it does many leading questions in pathology and therapeutics.

This work of Dr Sturges has impressed us very favourably. It is characterised by an intimate acquaintance with the whole literature of the subject, and is at the same time evidently the outcome of careful clinical observation. The subject is not new to the author, for in 1867 he contributed an article on it to the *St George's Hospital Reports*; and since that he has given much attention to the study of the disease. The book opens with an account of the various ancient and modern epidemics of pneumonia; and the inference from the perusal of the whole literature is, that there are two great types of pneumonia to be recognised—the epidemic and the idiopathic. The clinical and anatomical forms of pneumonia of authors are then dealt with, and Dr Sturges gives a classification of his own, founded on an analysis of all the fatal cases of pneumonia for twenty years at *St George's Hospital*. He admits four varieties of lung consolidation:—

1st, That occurring in patients who die of tedious and exhausting diseases.

2nd, That occurring in the specific fevers and uræmia.

3rd, That which seems due to mechanical causes, as from deficient power of the heart; from valvular diseases, or from altered conditions of the blood.

4th, That occurring in acute pneumonia, always associated with pleurisy and often with pericarditis. This is the

only one which he considers has distinctive features; and it is to it he would restrict the term "pneumonia," and elevate it into a class by itself. In it the hepatization is an essential—in the other three an accident. To this classification, as to all others, objection can be made, and certainly it requires qualification; for while we admit that in most cases it is possible to distinguish the hepatization of acute pneumonia from that which occurs in the specific fevers, owing to the latter being chiefly lobular, still, in not a few instances—especially in scarlet and typhoid fever—the consolidation is lobar, and quite indistinguishable from that of acute pneumonia. We also think that Nos. 1 and 3 might be classed together with advantage.

The chapters devoted to the symptoms and physical signs are excellent. Every point is taken up separately, but yet without too great minuteness, and from the whole a very vivid picture is gathered. He ventures an explanation of the *pneumonic crepitus*. He thinks that "on inspiration the air would be brought into such cells as are yet unoccupied by exudation, while at the same time the adjacent and loaded cells would be subjected to an increased pressure, so as at length with a deepening breath to produce a noise by the oozing out of their contents."

A point to which Dr Sturges devotes considerable attention is the distinctive nature of the pyrexia in this disease. He claims for pneumonia a place between the specific fevers and the local inflammations; and certainly it exhibits characteristics of both. It differs from the specific fevers in having no incubation stage and in not being contagious, but in the sudden onset of the pyrexia, its definite course, and its abrupt termination, it bears a close resemblance to some of the fevers. Dr Sturges inclines to the belief that pneumonia is a constitutional disease, and that the pyrexia does not depend, to any great extent at least, on the lung lesion. This seems to be borne out by the facts that the fever may precede the earliest physical signs by days, and that it bears no relation to the amount of lung involved. The lung becomes implicated secondarily, as it is the *pars minoris resistentiæ*. The whole of the chapter devoted to the consideration of this question is very suggestive.

A chapter is devoted to the varieties of pneumonia, where it is associated with rheumatism, pericarditis, renal disease, &c., and the modifying effects these have in the disease are discussed in detail. The morbid anatomy of pneumonia is fully given, and its relation to other forms of



lung consolidation. The author states that "pneumonia occurring in tubercular subjects has no other course or termination than when it occurs in a healthy person, but it is possible that in some instances an attack of pneumonia may hasten the development of acute phthisis." He thinks it is only in exceptional cases that the material products of pneumonia give rise to caseation. We are rather sceptical of these statements, and would certainly regard with great anxiety the occurrence of pneumonia in a tubercular subject.

The book closes with a chapter on treatment, containing a short account of the extent to which bleeding and the administration of antimony were carried by Rasori and Bouillaud. This "jugulant" treatment is now only of historical interest, and Dr Sturges, in accordance with modern views, advocates the careful feeding of the patient and the treatment of symptoms. His use of stimulants is moderate and only to tide over a crisis, or if the appetite should fail. He is silent with regard to milk diet, on which we have seen so many cases do well.

The book is well got up, the type clear and large, marginal notes are numerous, and the transference of the cases to an appendix is an advantage. The style is vigorous and graceful.

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III.—QUAIN'S ELEMENTS OF ANATOMY. Eighth Edition. Edited by WM. SHARPEY, M.D., ALLEN THOMSON, M.D., and ED. SCHÄFER. Vol. 2. London: Longmans, Green & Co. 1876.

THE second volume of this work is now before us, and it affords ground for much interesting study.

The labour of editing it has been shared by Dr Sharpey, assisted by Mr Schäfer; and by Dr Gowers (in the section on the nerve centres). Dr Allen Thomson has taken up the subject of embryology and reproduction, which, in this edition, are treated of in an elaborate chapter by themselves.

The first thing which strikes one, on comparing this volume with the corresponding one of the previous edition, is the very noticeable enlargement of the bulk of the book. The danger to which we alluded in our notice of the first volume is by no means evaded in this one; and we would again call the attention of the Editors of the work to the terrible prospect which "Quain's Anatomy," as it now stands, presents to the young student of medicine. We hold that it is impossible to master such a work in the time allotted for anatomical study, and we fear that the attempt

to do so will only steal away the time and the attention of the student from the more instructive training in the Dissecting Room.

Passing, however, from this aspect of the question, and considering the work itself in detail, we willingly allow that no pains have been spared to push every section forward to the utmost limit of modern research. Particularly is this so in the minute anatomy, where illustrations and new matter have been unsparingly added. It might, perhaps, be regretted that the new matter has not been more condensed. As might have been anticipated, the hand of Dr Klein is conspicuous in the illustrations and in the letterpress of this section; but there is hardly a tissue the histology of which is not copiously illustrated from the best and most recent sources.

We notice that at page 75 the ossification of the costal cartilages is alluded to. "It is not uncommon to find the rib cartilages extensively ossified." It is not stated in what the ossification consists. So far as our own observations on this point go, the only real ossification of a costal cartilage proceeds always from the perichondrium, extending from the sternal or the costal end of the cartilage in the form of plates of true bone, which, on dried specimens, resemble a closely-growing osteophyte, and which in the case of the first costal cartilage not unfrequently quite encloses the cartilage in a casing of new bone. The centre of the costal cartilages appears never to ossify, but undergoes calcification in very many cases by an amorphous deposit of calcareous salts in the cartilaginous matrix.

The presence of stellate cells in cartilage in the vicinity of synovial membrane is maintained and illustrated by a woodcut. The type of the cartilage cell can hardly be said to be other than the stellate one. There is a strong tendency, in cartilage cells under abnormal conditions, to return to the stellate form. Thus in cartilaginous tumours the cells are often stellate; and we have seen, in cartilage from the surface of a diseased os calcis, cells of decidedly stellate form. As is well known, the cells of the cartilage of the shark, &c., are of this type.

The account of the ovaries has been retouched, and the later observations and illustrations by Waldeyer have been incorporated. The work done in this direction by Foulis, of Edinburgh, has also received due notice.

In the description of the brain, a few new woodcuts have been put in, to show the relations of the convolutions. This

section has always seemed to us to be deficient in the easy perspicacity which marks some of the other chapters, and it is to be desired that in a future edition some simplification of the arrangement should be made. The removal of such wretched sketches as that on page 555, and the introduction of faithful and well-considered drawings of vertical transverse sections, after the manner of Charcot, would help to facilitate to the student the comprehension of this difficult region.

The impression left by the study of this volume is, on the whole, that of admiration for the completeness with which it is revised and brought up to date. If a fault must be found with it, it would be that there is, perhaps, too much overlaying of the coarse or naked-eye anatomy by microscopical and morphological details; for, after all is said and done, the real value of such a work lies in the manner in which the coarse anatomy is worked out. Few, comparatively, of the medical men of this, or indeed of other countries, look at life through a microscope, and although it is quite true that in modern teaching microscopical study is assuming a higher and higher place year by year, yet we fear that the modern *furor* for minute cell changes may prove a sort of Will o' the Wisp, which will not always lead to safe conclusions.

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IV.—A DICTIONARY OF HYGIENE AND PUBLIC HEALTH, COMPRISING SANITARY CHEMISTRY, ENGINEERING, AND LEGISLATION, THE DIETETIC VALUE OF FOODS, AND THE DETECTION OF ADULTERATIONS. By A. W. BLYTH, M.R.C.S., &c., &c. Pp. 672. London: Griffin & Co. 1876.

In his preface to this dictionary of hygiene and public health, the author explains that his object was to furnish "a book of reference, which, in one volume of convenient size, shall contain the information on sanitary topics at present only to be gathered from the perusal of many separate and distinct treatises." We have kept his book on our desk for some time, and referred to it as occasion required, which is the surest basis on which a reviewer can pronounce judgment on a dictionary or handbook, and we can positively say that Dr Blyth has amply succeeded in carrying out his intention. He states that he chose Prof. Tardieu's well-known "*Dictionnaire d'Hygiene Publique*" as his model, but he has produced an essentially new work, a special feature of which is the incorporation of the whole of that admirable digest of English

sanitary law, the Public Health (England) Act, 1875, under the several headings to which its enactments apply. In pointing out this feature of the book we experience some annoyance as Scotch reviewers in having vividly impressed upon our mind the neglect of our wants, with which the Imperial Government, and especially the present occupants of Downing Street, have systematically treated that portion of Great Britain to which we belong. We confess, in view of the prospect of the current Session of Parliament as regards Scottish Bills, to a growing sympathy with Home Rule. If we were Irishmen we might hope for a debate upon a proposal to aid us to catch the fish swarming on our coasts, but which then we should be too lazy to catch without aid and patronage. Being Scotchmen, we cannot get a Bill to reform our Poor Law passed, or a Public Health, or Registration Amendment Bill, known to be drafted, even brought from the recesses of the Lord Advocate's desk. In this respect Mr Blyth's work is not adapted for our use. He has not attempted to embody any reference to Scotch sanitary enactments, such as they are. There is no reference whatever to the Board of Supervision, or the constitution and powers of Local Authorities under the Public Health (Scotland) Act; or to such important local acts as the Glasgow Police Act, which is all the more vexatious that they led the way in important provisions which are now incorporated in the English Act. While, therefore, we can commend to our Southern friends the present Dictionary as an admirable and almost perfect book of reference, we can only say to ourselves—judge from this what you miss from the unfortunate circumstance that though a part of Great Britain, you are not England, or even Ireland. But apart from such local and invidious distinctions, as far as refers to general principles and facts, the work is one which must be universally useful, and on this ground we say to our Medical Officers of Health, and Sanitary Inspectors, add it at once to your works of reference.

One of the best articles in this book is that on sewers and sewage, which extends to 24 pp., and is full and complete; but it is a shorter task to note errors or points in which we differ from the author than to enumerate excellencies. In dealing with disinfection, there is an absence of breadth and expression of principles as to the action and selection of a disinfectant. At the same time there is a want of the detail which a man desires when in search of instruction as to the doing of something he never did before. We are told that "In all cases of air-disinfection, if the air of a house is to be purified, and if it is possible

to remove all persons out of it, all windows and doors should be hermetically sealed up with list, rags, &c., in the cracks, and nitrous acid, chlorine, or other disinfectant, copiously disengaged in each room; and after many hours a thorough ventilation of the whole will be necessary." This is very like the writing of a man who has got his knowledge from reading, and has never practised what he prescribes; and the following is even more suggestive of a chemist well versed in the properties, and ignorant of the practicabilities of disinfecting substances. "The disinfectants for infected air that are most likely to hold their ground are bromine, iodine, sulphur, nitrous and other acid fumes, and ozone." Think of ozone holding its ground as a disinfectant for infected air! There is much more hope of Thallium or Rubidium, or some of those infinitesimal metals holding their ground in the mechanical arts! But we are satisfied there is much misspent labour over this air-disinfection. It will be observed that our author's instructions begin with the use of "nitrous acid, chlorine, or other disinfectants," and end with "after many hours, thorough ventilation will be necessary." That is to say, when we can discharge the infected air into the great atmospheric ocean, there to be at once diluted and disinfected by nature, we are first to "crib, cabin, and confine it" under the influence of troublesome chemical agents for "many hours." This cannot be done while the living sources of infection are present, and when these are removed, we have to deal with the infected materials on the surface of the walls, and in the bedding, and other porous bodies in the shape of furniture, to all which ordinary processes of cleansing are directly applicable. In short, whatever value belongs to so-called processes for air-disinfection is to be sought not so much in its effects upon the air, or contagia therein suspended, as upon contagia deposited from the air, especially in crevices and pores to which air alone has access.

Some defects are obvious under the headings of the various fevers. The genesis of typhoid contains no sufficient reference to the conditions under which it is propagated in urban communities. No reference whatever is made to the well-known observations of Dr Fergus, with regard to the lesions of soil-pipes, which are so characteristic of the urban etiology of typhoid. Nor do we find any mention of the dangers of an intermittent water-supply when associated with that intimate connection of water-supply for dietetic uses, with that for the purpose of filth-removal, which ignorance of the first principles of hydraulics, on the part of our plumbers, has made so common. Again, in regard to typhus, the relation of overcrowding of inmates, with its prevalence in cities, is not sufficiently insisted

upon, if we admit that it is even alluded to. Under "over-crowding," we find statistics as to over-crowding of "houses," which are quite useless, because the term is employed with that structural meaning which is sanctioned by English usage, but which has no reference to the family, which is the real social sanitary unit. Finally, under "yellow fever," when referring to the historical proofs, that although a tropical disease, it may be imported into and take root in Europe, no mention is made of the Swansea epidemic. An interesting history is given of the epidemic of St. Nazaire, in France, but this single home-illustration, so fully reported upon by Dr Buchanan, in 1865, is not quoted, although such a reference is so necessary to impress the readers of this English handbook with the risks to which the commerce of the country so frequently exposes our seaports.

As Scotch reviewers, we have not forgot Johnson's Dictionary so far as to overlook, in Mr Blyth's, the lively existence of the long defunct bugbear of intestinal concretions as a probable result of the use of a most excellent, but, alas, too much disused article of national diet. Intestinal concretions, which used to be as plentiful as calculi in our museums, are now as scarce as mammoths; and although it is a natural and unavoidable economic result of cheap bread, and the relief of the duties on tea and sugar, that in towns porridge and oatcakes are rarely seen in the houses of the working-classes, still the change is not the less injurious, especially to the young. The dietary of the children of the Irish and Irish-Scotch in our cities is not only physiologically poor, but it is, to a considerable extent, positively poisonous.

These are a few criticisms which have suggested themselves during a careful examination of Mr Blyth's Dictionary of Hygiene. We wish, in conclusion, to repeat that it is a most complete and handy work. It is ample and accurate in its contents, and what it contains is made easy to discover and to use by a copious index, in addition to the ordinary alphabetical arrangement of a dictionary, so that subjects are treated continuously, and yet to every portion of the article separate reference can be made.

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V.—THE GEOGRAPHICAL DISTRIBUTION OF HEART DISEASE AND DROPSY, CANCER IN FEMALES, AND PHTHISIS IN FEMALES IN ENGLAND AND WALES. Illustrated by Six Small and Three Large Coloured Maps. By ALFRED HAVILAND, M.R.C.S., England. London: Smith, Elder & Co. 1875.

MR HAVILAND does not ever-estimate the importance of the geographical distribution of disease, at which he has laboured so long and so arduously. If it could be put on a satisfactory basis, much light might arise as to the origin and etiology of certain complaints, and as to the treatment of patients affected with such diseases; not a little even might be done for the extermination or diminution of them as a class. In ague, for example, a knowledge of the geographical and climatic influences at work assists not only the diagnosis and treatment of individual cases, but also directs the preventive efforts and precautions taken in moving masses of men from place to place; even the conditions themselves, which tend to produce this disorder, have been found to be amenable to treatment by draining operations and such like, and so the disease is attacked at its very source. That other diseases now raging in our midst depend, for their severity and frequency, on geographical and geological peculiarities, seems extremely probable. This work is an attempt to deal with three diseases on the basis of figures. These figures represent the number of deaths reported in the registration districts for such diseases during ten years (1851-1860) in England and Wales, calculated in their relation to the mean population living during that period in such districts.

The maps embodied in the work indicate this proportion: three tints of red indicate, according to their depth, the localities healthier than the average, so far as the special disease is concerned; and three tints of blue represent, in the same way, those which have a mortality from these diseases higher than the average. A glance, therefore, at the maps brings out the deep red and deep blue in contrast, and shows where the disease thus represented is least and most prevalent. Doubts, however, have been expressed as to the correctness of representing the prevalence of diseases in this way, and in the "Supplement to the Registrar-General's Reports on Births, Marriages, and Deaths, in Scotland during the ten years, 1861-1870" (Edinburgh 1874), the objections to Mr Haviland's statistical methods are stated, and the conclusions at which he has arrived are impugned. It is there maintained that before the death-rate from special diseases,

calculated according to the population living, can be accepted as proof of their relative prevalence, this must be adjusted with reference to the general death-rate from all causes, and that as this calculation is troublesome, the proportion of deaths from special diseases to those from all specified causes would give a more reliable index than the one adopted by Mr Haviland. That there is some force in this objection we admit, and the tables compiled, as regards Scotland, indicate differences according to these three different methods; but we do not think that the statistical method adopted by Mr Haviland seriously vitiates the conclusions arrived at. A graver source of doubt seems to us to consist in assuming the names of the diseases recorded in the registers as indicating real facts. A widespread feeling (increased by the prevalence of life insurance inquiries) exists against registering cancer or phthisis as the cause of death if it can be avoided; and there can be no doubt that many deaths are returned as bronchitis, or under other names, which would have been more correctly classified as phthisis. Cancer, when it affects the internal organs, is often extremely difficult to be sure of, in the absence of a *post mortem* examination, and one can imagine that the diagnosis of such cases must vary much according to the knowledge of the medical men who may happen to see the case; in cancer too, no doubt, the dreaded name is often omitted from the register if there seems even a faint doubt.

The other diseases dealt with jointly by Mr Haviland, under the name of "heart disease and dropsy," are even more likely to be made up of very heterogeneous items, and we confess to a feeling of surprise that he should not only have ventured to rely on this conjoint heading as an index of the prevalence of heart disease, but should even have gone a stage further in his refinement and taken it as a gauge of the prevalence of rheumatism. What proportion of deaths from diseases of the liver and kidneys, from aneurism, tubercular peritonitis, and cancer, this heading of "heart disease and dropsy" may include, one cannot even safely guess at; and what is worse, we can have no assurance that this admixture of extraneous causes is at all constant in different localities, or that these errors are likely to counterbalance each other. When, further, we come to Mr Haviland's conclusion as to the geographical conditions which favour the development of fatal heart disease, we in Scotland are apt to be staggered. He says, "That wherever the sea air has uninterrupted access, as over a flat country, up broad vales or valleys, and elevated country, we find a low mortality from heart disease and



dropsy; and that on the contrary, in places where the tidal wave has no access, where the rivers run at right angles to its course, or to that of the prevailing winds, there we find the highest mortality from this cause of death" (p. 35). And again, "I think that the coincident phenomena displayed in the foregoing pages point to some *materies morbi*, resident in certain localities, perhaps in all; the only difference being that one district is frequently purged by the beneficial influence of the sea winds, whereas another is sheltered so as to admit of an accumulation; this accumulated air-sewage may have either an animal or a vegetable origin, or both; it is impossible to say; all that we know is that it is coincident with excess of rheumatism and excess of mortality from heart disease" (p. 59). Now, it is a notorious fact that in the Western Highlands and Islands of Scotland rheumatism is excessively common, is indeed the bane of the population; and yet geographical considerations and actual experience alike point to this region as peculiarly exposed to the "purging" influence of sea air. This has been strongly brought forward in the Scotch Blue Book already referred to, and tables are there given showing that deaths from heart disease, rheumatism, and rheumatic fever do, in point of fact, prevail largely in places well exposed to the sea air, and that they do not occur with maximum or minimum frequency in the same districts. Mr Haviland, indeed, in the concluding part of this work (which was published several years after the part dealing with heart disease and dropsy) attempts to meet the criticisms based on the Scotch statistics, and after suggesting that the figures are not large enough to allow of safe deductions, goes on to suggest "that in the exposed parts of Scotland rheumatism and rheumatic fever, when they do occur, are proved to assume an acute form and kill during that stage, and are therefore registered as such. This is what one would naturally expect in such a climate. In the English villages, however, sheltered and protected from the harsh sea winds, the more chronic form of rheumatism obtains, and to this form is attributable the heart disease which so insidiously slays and swells the death-rate from this cause" (p. 114). This seems rather like special pleading; for in a previous paragraph he had indicated that in England and Wales "the insular and peninsular districts, the most exposed to the sea winds of all districts, have a low mortality from heart disease and dropsy" (p. 35). Surely the insular and peninsular parts of Scotland should not differ much from those of England and Wales, if free access of sea air is so important in the

matter of rheumatism and heart disease. But further, we cannot accept the proposition that in these exposed parts of Scotland rheumatism always assumes an acute form and kills during that stage; it is well known that the chronic form, crippling the limbs, is particularly prevalent in the Western Highlands. A further difficulty in accepting Mr Haviland's propositions, especially when he ventures to suggest their application in the geographical treatment (if we might so call it) of patients affected with heart disease, is this:—Given a patient with heart disease, whether distinctly rheumatic or not, the fatal issue is often due to bronchitic attacks arising, amongst other causes, from exposure to cold, and we are afraid that the "harsh sea winds," so useful, no doubt, in their way, are too likely to set up, in a cardiac patient unduly exposed to their influence, a fatal illness which will swell the registrar's return, although likely enough it may find its place under the *name* of bronchitis, congestion of the lungs, or perhaps pneumonia, or even phthisis.

The other portions of this work, dealing with cancer and phthisis (in females alone), are free from some of the objections urged against the more mixed diseases included under the names of heart disease and dropsy. Cancer in females is specially apt to attack organs which are more within the reach of certain diagnosis, and even in phthisis, although many deaths are probably omitted from this disagreeable heading, the errors in such a case may reasonably be expected to neutralise each other. Moreover, the remarkable contrast which the two maps present to each other indicates a striking difference in the habitat of these two fatal diseases—the blue portions of the one map corresponding wonderfully to the red portions of the other. The Scotch returns, likewise, bear out this contrast, in large measure, both as regards town and country populations (Tables 76 and 77 in supplement quoted); so that Mr Haviland quotes, with some triumph, the figures adduced in this blue book, inasmuch as while they were thought by the compiler to be destructive of all geographical explanation, they really fit admirably into his theory of the contrast of these two diseases. Although this had been announced before, it had not been published in detail when the Scotch returns were issued.

But granting that a marked contrast exists in the prevalence of these diseases in different localities, we are afraid that the influence of age has not been sufficiently taken into account. Supposing all deaths over 70 years of

age were returned as due to "old age," we do not doubt that there would be a very marked contrast between the geographical distribution of such deaths and of those due to phthisis: where phthisis attained a maximum, "old age," as a cause of death, would be, as a rule, at a minimum. Now cancer, although not a disease of old age, is certainly incident to mature years, while phthisis, on the other hand, affects chiefly the younger population. The following figures, compiled from Mr Haviland's tables for the 10 years' mortality in England and Wales, show this:—

	Cancer.	Phthisis.
Total deaths of females, - -	42,137	269,618
Females between 35 and 70 years, -	35,625	.....
Females between 15 and 40 years, -	.....	187,865

Now, if a disease be prevalent in a locality which cuts off the population in large numbers in early life, it cannot be expected that those diseases which affect later life will appear in the same proportion to the population, as they would do if the population had not already been thinned by a disease affecting the young. Or to put it as an individual case (not common, perhaps, but still not hypothetical) a man may have narrowly escaped death from phthisis in early manhood to perish of cancer in old age: if he had actually died, as is the common event, phthisis would have had one added to its list, and cancer one removed from its number, and the mere subtraction of a unit from the population would not have affected the cancer death-rate per 1000 living in a corresponding degree. We fear Mr Haviland has not estimated such considerations at their full value, although, of course, they have not altogether escaped his attention. Indeed he discusses the death-rate from cancer in its relation to the general death-rate, and he sums up thus (p. 71): "The groups (of districts) in which cancer proved most fatal had an average annual mortality below the average, whilst in the most unhealthy divisions, the deaths from cancer only amounted to the fifth degree of mortality." This statement is important in view of the remarks just made.

The influence of hereditary transmission, likewise, seems to us to complicate the geographical distribution of disease more than Mr Haviland seems willing to admit. Indeed, with the enthusiasm of a discoverer, he appears inclined to reverse this matter. "When there is a tendency to cancer let the patient be removed to the high dry sites: and per-

chance if whole families were thus to emigrate, we should not hear so much of the hereditary character of this, or of many other diseases. We never hear of ague being hereditary," &c. (p. 91).

We have already quoted the opinion of the author on the geographical causes of the prevalence of heart disease. As to cancer, it "may be put aphoristically: Cancer does not thrive on a high dry soil" (p. 88).

Regarding phthisis, the author fully admits the great importance of industrial and social causes quite apart from geographical situation, but he maintains "that coincident with sheltered positions is a low rate of mortality from phthisis," and that "the distribution of phthisis is almost the converse of that of cancer, and differs remarkably from that of heart disease" (p. 105).

The ingenuity with which Mr Haviland brings in various geographical and climatic facts to explain what seem at first sight gross contradictions between his theories and his figures, is most remarkable, and his diligence in making himself master of the statistics and of the geography of the localities is worthy of all praise and admiration. We confess we have none of the local knowledge which would enable us to test the value of these explanations. The work is one of vast labour, and although we have thought it proper to point out wherein we consider fallacies may lurk, we consider the subject of such importance that we should like to see the researches pushed into other departments of the nosology; and we feel sure that if right methods be adopted, and discretion be exercised in selecting well-marked groups of diseases, with figures sufficiently large, much light might arise in many obscure corners of medicine and etiology.

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VI.—ELEMENTS OF HUMAN PHYSIOLOGY. *By* D. L. HERMANN, *Professor of Physiology in the University of Zurich. Translated from the Fifth Edition by* ARTHUR GAMGEE, M.D., F.R.S. London: Smith, Elder & Co. 1875.

THE need of a new text-book on Physiology has long been felt both by students and lecturers, and the announcement of the intended publication of an English edition of Hermann's Manual led most of those interested in the subject to look hopefully to it as the work designed to supply the want indicated. That this hope has not been entirely fulfilled is scarcely the fault of Professor Hermann, or of

his able translator and editor, Dr Arthur Gamgee, but is rather the result of the backward condition of the science of Physiology in this country, and still more of the imperfect training which our students receive prior to their commencing medical study.

Professor Hermann strikes the key-note of his mode of treating physiological problems in the first page of his "Introduction," when he tells us that "the forces of living are the same as those of inanimate bodies, and that they obey the same laws; and, consequently, that it will ultimately be possible to explain the hitherto incomprehensible phenomena of living beings, particularly their morphological processes, by physical and chemical laws." He indeed looks upon the human body as a machine for the conversion of *potential* into *kinetic* energy. Most of the processes which go on in organized bodies are undoubtedly the result of physical and chemical causes, and the problems connected with them have advanced much nearer to solution since the notion of the existence of a "vital force" has been discarded by physiologists; but we doubt if all the acts of highly-organised animals are susceptible of such explanation; and we consider it as unfortunate that German physiologists—and Professor Hermann among the number—have so exclusively confined their attention to this aspect of the subject.

The chapter on the "Chemical Constituents of the Body," which is fitly placed at the commencement of the book, does not commend itself to us as likely to be of any great service to students of Physiology. To those who have made organic chemistry a special study it is quite unnecessary, while to others it is perfectly unintelligible. It may be interesting to chemists, but it is scarcely likely to be instructive to medical students to learn that uric acid is probably *tartronylcyanamide*, that creatine is *methylguanidineacetic acid*, and that neurine may be looked upon as *trimethyl-oethylammoniumhydrate*. The author would have furthered the interests of biological science more effectually if, instead of entering into the discussion of so-called *rational* formulæ, he had given the mode of separation of uric acid, the biliary colouring matters, glycogen, and other important principles, together with the tests by which they might be identified. Practical Physiology, which we hope before long to see taught in all our medical schools, does not, we believe, include in its legitimate province the discussion of the subjects here taken up; and

we would suggest that in the next edition this portion should be entirely omitted.

The account of the blood and the circulation is, in many respects, excellent. The author believes that the oxygen in the blood is "for the most part chemically combined with it," since it is found that the amount taken up is entirely independent of pressure; while if plain serum be agitated with oxygen, the latter is merely absorbed, the absorption following Dalton's well-known law. He also holds that some portion of the nitrogen is chemically combined, "being most likely contained in the blood corpuscles." The account of the heart sounds and their causation is of remarkable brevity, being comprised in seventeen lines of large type; the muscular *bruit* and the vibration of the valves are both given as causes of the first sound, but the former of these is especially dwelt on; and it is noted that Ludwig and Dogiel distinguished this sound in a heart removed from the body and empty of blood. *Dicrotism*, the favourite *causus belli* of rival theorists, is said to be due "partly to the reflection of the waves from the end of the artery, partly to the back current on the closing of the aortic valves," but Hermann does not condescend to show how causes so opposite can *combine* to produce the effect described.

The whole of the secretions are grouped together in one chapter, which has the obvious advantage of rendering the description of them simpler, and their comparison easy; it results, however, in their dissociation from the history of the processes in which they are destined to play so important a part; and in the case of bile, saliva, gastric juice, and pancreatic juice, it has led to the exclusion from the work of any systematic account of digestion. In order to obtain any complete knowledge of this important subject, the student will require to refer to food stuffs, on pages 191 and 224, the chemistry of digestion, 142, and the history of the secretions, on pages 93 to 108. As regards the secretion of urine, the author accepts the view which we believe was first promulgated by Ludwig, and which has been favourably received in Germany, although little known in this country. Whether it be true or not, it serves admirably for explaining certain pathological conditions of the urine, and we feel that we need not apologise for quoting the whole of the paragraph in which it is described:—

"As the blood in the glomeruli is subjected to a high pressure, on account of the residence of the second capillary system in front, a free filtration into

the capsule must take place. Water and those constituents of the blood which form true solutions (salts, urea, sugar, &c.) will, therefore, pass into the tubuli uriniferi. Albumen, &c., which do not form true solutions, do not filter through, except under an abnormally increased pressure. The very dilute solution thus formed now comes into proximity, at the walls of the tubuli uriniferi, with the blood which it has just left, and which is in a concentrated state, owing to the loss of water; diffusion must result (Ludwig), leading to a return of water into the blood, and to a consequent concentration of the urine. Besides these physical processes, other causes seem to co-operate in the formation of urine. Many circumstances lead us to suppose that the glandular cells (epithelium), especially, assist. Pathological degeneration of the epithelial cells, for example, interferes with secretion; and, in birds, uric acid deposits are seen to originate within the cells, the disintegration of which seems necessary before the deposits can become free (Von Wittich, Meissner)"—page 113.

Respiration and movement have so intimate a connection with physics, that we are not surprised to find the chapters on them more thoroughly worked out and more satisfactory than any others in the book. There is, however, some confusion with regard to the action of the intercostal muscles; for, whereas in the lists of expiratory and inspiratory muscles, the internal intercostals are placed in the former category and the external in the latter, in smaller type on page 163 they are both stated to be inspiratory, which in our opinion is the more probable theory of the two.

The space devoted to voice and the special senses is much greater than their importance would seem to warrant in a work treating of general physiology. We have seldom met with a more complete and accurate account of all that concerns the optics of the eye than is therein contained, but are sure that not one per cent. of our students of physiology have a sufficient knowledge of the higher mathematics to be able to understand or work out the problems contained in the 12 pages of small type devoted to them. We can, however, better excuse their introduction than the long and by no means interesting disquisition on the "horopter," the whole of which might have been omitted without any real loss to the student.

We are compelled by the limited space at our disposal to leave the chapters on the nervous system almost untouched; but we would note in passing that the author is not prepared to admit the conclusions arrived at by Fritsch, Hitzig, Ferrier, Nothnagel, and Fourniè, with regard to the localisation of function in the brain. His only argument is the old and oft-repeated one that "it is impossible to prevent a diversion of the current through the deeper portions of the brain." It is, of course, difficult to prove

that such diversion does not take place, but we think that, in view of the very weak currents used and the close approximation of the electrodes, it is, at least, very improbable; and, indeed, Ferrier has shown that stronger currents do produce very different and more complicated motions, such as might be expected to result from diffusion of the stimulus.

Throughout the work no histological details are given, and as a consequence the illustrations are "few and far between"—indeed, they number only 42 in all, including the diagrams which illustrate the optical and mathematical sections.

The work is one which no teacher of physiology, and no original worker in this most difficult domain of medical science should be without; but it is not adapted for ordinary medical students, and we should be sorry to place it in their hands, for its perusal would only result in their giving up the study of physiology, as being a subject beyond their comprehension, or as requiring more time than they were justified in devoting to it.

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VII.—A TEXT-BOOK OF ELECTRICITY IN MEDICINE AND SURGERY. By GEO. VIVIAN POORE, M.D., *Assistant Physician to University College Hospital; Senior Physician to the Royal Infirmary for Children and Women, &c.* London: Smith, Elder & Co. 1876.

THIS volume meets the wants of those, and they are an increasing number, who find on the one hand Dr Russell Reynolds' lectures on electricity rather meagre, and who find on the other hand the books of Althaus, Duchenne, Meyer, Onimus, &c., too detailed to allow of their grasping these works in their entirety. Dr Poore very properly, we think, enters into particulars regarding the electrical elements used, and the chemical processes which go on; unless the possessor of the instrument has a clear idea of the actions which take place in the battery, of the use of amalgamating the zinc plates, of the relation which the coils bear to the cells and to the interrupting part of an induction apparatus, and such like, he will frequently find little defects, which could easily be set right, but which render the instrument useless just when it is wanted; and he will, moreover, have a less accurate knowledge of how to preserve the battery from such annoying accidents.

We think also that the author does wisely in dealing with separate diseases in considerable detail, and in giving illus-



trative cases to exemplify the methods in which electricity is applied; he has, moreover, exercised a wise discretion in introducing chapters on the surgical applications of electricity as a caustic and as a cautery, for practitioners cannot be expected to accumulate works on different departments of electrical treatment. The allied subject of electrolysis, as applied to the treatment of internal aneurism, is discussed at considerable length. The author strongly advocates the method of introducing needles, connected with both poles of the battery, into the aneurismal sac; indeed, he seems to doubt whether electrolytic action can go on when only one needle is introduced, unless the current used is so strong as to be scarcely bearable, or at least apt to cause sloughing of the integuments. In referring to Dr M'Call Anderson's first case, he hints that as no mention was made of the amount of corrosion of the needle, the electrolytic action obtained from eight cells of a Stöhrer's battery must have been very small, in face of the resistance of the integuments, as only the positive pole was introduced into the sac, and the circuit closed by a sponge moistened in salt water applied to the chest wall; the present writer, however, can testify to the fact of very marked corrosion of the steel needle having occurred in connection with the operation, so that theoretical considerations must yield to the results of experience. This method of treatment of otherwise hopeless aneurisms has scarcely yet been sufficiently tried to judge of its real value; indeed, in very few cases of aortic aneurism can we hope for anything like a cure under even the most favourable circumstances: even when distinct benefit has seemed to follow the operations, the cases have seldom been quite satisfactory, and unfortunate results have sometimes followed, clearly traceable to the operation in question.

The only part of the volume out of proportion to the rest is that dealing with electricity in "fatigue diseases" (writer's cramp, &c.); but we can almost accept the author's apology for this, as he had elsewhere given us some important observations on a particular method of using electricity in such affections, and he "was naturally anxious to state fully his views on a matter which seems to him of no small importance."

We think the value of the book to the practitioner would have been enhanced by an indication of the cost of the different instruments recommended, as those who live at a distance from large towns find a difficulty in procuring information on this point, which to them is usually one of considerable importance.

VIII.—ON THE RELATION BETWEEN DIABETES AND FOOD, AND ITS APPLICATION TO THE TREATMENT OF THE DISEASE. *By* ARTHUR SCOTT DONKIN, M.D., &c., &c. London, 1875. pp. 186.

IN reviewing a former work of Dr Donkin on the subject partly of diabetes, we had occasion to examine the arguments advanced by him in favour of the "skim-milk treatment," both of that disease and of the forms of albuminuria associated with dropsy. We do not find, on reading the present work with some care, that we have anything new to deal with, as regards the latter subject. Bright's disease seems to have dropped out of sight altogether, as though the author himself had seen reason to abandon, or at least to postpone, this part of the claims advanced in the former work. In thus lightening the ship, as it were, by throwing overboard a not unimportant part of the cargo, the author seems to us almost to have responded to the "modest scepticism," which we expressed as regards the proposal to apply exactly the same principles of treatment to "two diseases so different in all respects, as diabetes and Bright's disease;" a scepticism which was perfectly consistent, in our mind, with a determination to appreciate fairly the facts of the case, and which indeed was accompanied by a most earnest desire to believe, in so far as we could, what the author recorded as fact in the volume to which we have alluded. We do not, therefore, feel that we have anything material to alter as respects our former judgment, which we believe the author will be the first to admit was a fair and certainly a carefully considered one. We shall be content to refer the reader to Vol. IV., p. 257 of this Journal, and to reconsider the question of diabetes alone, in so far as it can be said to be advanced by the present volume. Perhaps it is right, however, that we should mention at this stage, that our own trials of the "skim-milk treatment" in Bright's disease have yielded, on the whole, such equivocal results as to convince us that this portion of the author's former work was practically a dead weight, as regards the reception of the other; and we think, therefore, that he has done wisely in submitting the cure of diabetes by skim milk again to public criticism, without the attempt to strengthen the case in favour of the remedy in the direction of Bright's disease, at least in the meantime.

It will be remembered that Dr Donkin affirms, what no one now-a-days will be likely to deny, that the treatment of diabetes by *mere* exclusion of saccharine and starchy elements from the diet (as in the methods of Rollo and Bouchardat)

has only a very limited application, and is only efficacious, if at all, in the earlier stages of the disease. It seems to be too clearly established to admit of doubt, that diabetics, when the disease has advanced so far as to very seriously threaten life, excrete in large quantity sugar which is not derived from ordinary sugar-forming food, but from the complex mal-assimilation and decomposition of albuminous, and probably also of fat-forming foods, as well as from the corresponding tissues of their own bodies. In the earliest stages of the disease, indeed, as also in many of the cases of senile or intermittent diabetes, the patient often emaciates slowly, or not at all; the balance of supply and waste being kept steady by the excess of appetite, and the essentially unimpaired digestion and assimilation of the albuminous elements. But as the disease goes on, the patient becomes (as it has been called by Continental writers) "autophagous;" *i.e.*, the excessive excretion of sugar is maintained, not only by the increased supply in the shape of food, but by the gradual invasion of the tissues, the nitrogenous elements generally being converted into sugar, which is removed by the kidneys, and into other products foreign to the animal economy in the state of health, which are partly excreted and partly retained, to the great injury of the health in other respects. These facts in the pathology of diabetes are now generally admitted, and the account of them given by Dr Donkin is mainly in accord with the present state of science, although, as we think, in some points unduly, or at least prematurely, accommodated in their expression to his own peculiar views as to treatment. Without reproducing or criticising the author's statements in detail, we may refer our readers to the work itself, as full of ingenious, and, on the whole, fair deductions from the most recent researches on diabetes. Dr Donkin does not profess in this department, however, to have any strictly original or new matter to offer us; we may therefore advance rapidly over the theoretical part of the book to what is certainly, in this case, "the proof of the pudding"—*viz.*, the new evidence as regards the efficacy of skim milk diet in the treatment of diabetes, and the necessity which exists, according to the author, that the principle of this treatment shall not be compromised by any attempt to make it a part only of some other plan, as for example, the purely animal diet of Rollo, or the non-saccharine and non-amylaceous mixed diet of Bouchardat and others.

In dealing with some of the preliminary questions to

which we have referred, Dr Donkin betrays what appears to us an undue anxiety to set aside the view of the "auto-phagism" of the diabetic, as we have above defined it. He holds, in other words, that the sugar in diabetes is not derived in any degree from the tissues (as is now the opinion of the most advanced pathologists), but *only* from the food; all the elements of the latter, however, being so mal-assimilated as to yield sugar, at least in the later stages of the disease. This is one of the points at which we think the author's theory weak; or rather, in which we think he has been biassed by the desire of completely justifying from the theoretical point of view the treatment he has adopted. If sugar is, in the diabetic organism, derived from albuminous matters at all, it must in the nature of the case be extremely difficult to *prove* that, when the patient is persistently losing flesh, sugar is *not* derived from the waste of the tissues as well as from the food. Dr Donkin, as we think, fails to prove this. The reader, however, will find his arguments upon the subject, such as they are, at pp. 33-46. It is impossible to avoid the conclusion that Dr Donkin clings to a theory of diabetes which ascribes it purely to mal-assimilation, mainly because he believes that the disease may be cured by regulating the diet. If diabetes were ascertained always to be completely controlled by a purely dietetic treatment, the theory would follow from the success of the practice; but it is something like arguing in a circle, in the first place to affirm the theory without proof, and then to make the theory so affirmed one of the supports of the practical conclusion.

The objection which we have to make to the theoretical part of Dr Donkin's book is, that it seems to us to be a too carefully framed *a priori* argument in favour of the practice, from which it is really, in the author's mind, in great part an inference. The skim-milk treatment of diabetes must stand or fall by its own merits; and we cannot afford to lose sight of the fact that the question of its success, or the contrary, is one to be solved only by continuous observation. Dr Donkin argues—1. That diabetes is a disease of mal-assimilation only. 2. That it can therefore be controlled only by a diet which admits of due nourishment of all the tissues, by means of substances which, in the combinations given, cannot be mal-assimilated. 3. That the *only* form of nourishment which perfectly fulfils these conditions is skim-milk, pure and simple, as an exclusive article of diet. These propositions *may* all be true; but it is quite obvious that the last of them does

not depend upon the two former as an inference, but is really the essential proposition on the truth of which the others depend. Indeed, the admitted non-success, or only partial success, of previous dietetic methods establishes a presumption against the first two propositions which cannot be done away with without the most clear and definite evidence as regards the last.

We make these remarks with the less hesitation, because, as will be easily inferred by those who have read our former notice of Dr Donkin's labours, we are really conscious of no prejudice whatever against his practical conclusions as to the value of skim milk in diabetes. Moreover, in dealing with other theories than his own, as for instance those which seek the *primary* lesion of diabetes in the nervous system (apparently supported by the recent observations of Dr Dickinson), we are disposed to go along with him, and to give him the credit of logical consistency, if not of having absolutely proved his case.

We now propose to let Dr Donkin speak for himself, by extracting from the present volume so much of his argument in favour of an exclusive diet of skim-milk as will serve to shew in some measure the grounds on which the author rejects the older methods, and demands an unqualified adhesion to his own system of dietetics. The first extract we shall give is a general statement of the doctrine above referred to—that diabetes is essentially a disease purely of the assimilation :—

“The experience of nearly a century—since the time of Rollo—has abundantly established the fact that the intensity and duration of diabetes are powerfully controlled by the composition of the food of the patient ; so that it can generally be either arrested or held in check, at least, by the timely and careful administration of a dietetic method of treatment, while, on the contrary, the symptoms are greatly intensified, and the disease runs a much more rapid course when the diet of the patient is not restricted. We are thus enabled to trace the existence of a direct and special relation between the disease and the food consumed, which supplies it with materials for its activity in the production of diabetic sugar.

“I have already shown in my numerous contributions on the subject, and my experiments have been confirmed by several competent and impartial observers, that a purely skim-milk regimen completely arrests the formation of sugar, and thus cuts short the disease in a large majority of cases *not too far advanced, or complicated*, and that in a large proportion of these latter even, it enormously diminishes the quantity of urine sugar, with a correspondent amelioration of the condition of the patient. If this is a clinical fact, as I strenuously maintain it to be, the question naturally suggests itself—What light does it throw on the pathology of diabetes? for we know that the *jurantia* and the *ludentia* of disease frequently supply valuable assistance in the unravelling of obscure pathological problems.

“Now the fact that the liver in health secretes glycogen in considerable quantity, together with other facts in relation to this function, point to this organ as the *probable seat* of diabetes, and the source of the sugar so abundantly formed by it.

“If, then, diabetes is seated in the liver, and if, in addition, it is so powerfully under the control of a purely skim-milk regimen as is here contended (even after it has passed into the phase in which the albumen of solid animal food is converted into sugar) it is certainly reasonable to conclude that the disease is one of morbid nutrition and morbid secretion of that organ. This is the view, based on a careful study of its clinical history and the effect of treatment on it, which I have been led to adopt of the pathology of the disease. According to this view the healthy function of the liver in secreting glycogen is suspended, or for the time abolished, and the liver cells secrete diabetic sugar *directly*, as a morbid product, instead; this diabetic sugar being a *new formation*, foreign to the organism, and therefore without a function to discharge: in fact a morbid growth differing from other diseased growths of cellular origin in one essential or specific character, namely, that it is a *crystalloidal* substance which, instead of accumulating or growing, as it is termed, amongst the tissues where it is formed like ordinary *colloidal* formations or products, and leading to the enlargement or destruction of organs, as the case may be, is subject to the laws of *osmosis*, with a strong affinity for water—its endosmotic equivalent. Therefore it passes into the current of the circulation as quickly as it is formed, leaving the tissues in which it is generated intact, uninjured, and unenlarged; hence the difficulty of detecting the seat of its formation.

“Confirmatory of the view just expressed of the nature of diabetes, the fact must be noticed that the sugar found in the urine is always the same, namely, *diabetic sugar*—from whatever alimentary substance it may have been derived: whether from starch, from cane, or grape, or any other form of sugar, or from albumen or any other kind of food.

“A very close analogy can readily be drawn between diabetes and certain new formations of constitutional origin and productive of cachexia” (pp. 27-32).

Our next extract will be from the second chapter, and will give an insight into the history of milk diet in relation to diabetes, and of some of the controversies that have arisen since Dr Donkin first proposed it as an exclusive diet:—

“Rollo, who, acting on the suggestions of Dr Francis Home, was the first to originate a systematic dietetic treatment of diabetes, recommended milk to be taken in the regimen he prescribed, and, as an examination of his cases will show, without any injurious effect on his patients. Much more recently his example has been followed by Sir Robert Christison, Dr Prout, and the late Dr Bence Jones, who, as the result of his own experience, came to the conclusion that milk sugar is not easily converted into diabetic sugar in the human body.

“In 1852, in a memoir to the French Academy of Medicine, M. Bouchardat, of Paris, condemned the use of milk in diabetes as highly injurious, but recommended sweet cream, butter, and all kinds of cheese, and, most unfortunately, his advice has been adopted and repeated by most writers on the subject, both abroad and in this country.

“But notwithstanding the wide acceptance which the views and method of treatment of Bouchardat have received, I have no hesitation in stating

as my mature conviction, derived from sufficient experience, that they have operated most perniciously, and, more than any other cause, have prevented the development of a proper and effective dietetic treatment of diabetes.

“Those who believe that lactose must be injurious in diabetes because it is a species of sugar, do not take into consideration the very important fact that it has widely different chemical properties and physiological relations from diabetic sugar and the other forms of glucose. Belonging to a different class of sugars, it does not undergo *alcoholic* fermentation in contact with yeast, and, in addition, it does not precipitate the oxide of copper when treated with the reduction test. On the other hand, it is subject to *lactic* fermentation by the action of ferments. On account of these intrinsic differences, lactose, as an ingredient of milk, cannot undergo the same metamorphic changes as glucose in the processes of digestion and assimilation in health (nor be converted into it in diabetes); its conversion into lactic acid being *direct* and *immediate*, not by *intermediate* changes through which the latter pass into this substance. For this reason, which is perfectly intelligible, milk sugar, unlike vegetable glucose, is assimilated, and the reverse of injurious, in diabetes.

“That milk sugar is actually assimilated in diabetes, and consequently is *not* converted into diabetic sugar, has been abundantly proved by my own experiments on a very extensive scale; with a purely skim-milk diet rigidly adhered to in the treatment of the disease, embracing considerably more than *one hundred cases*. The treatment having been continued in different instances over periods varying from a week to three months uninterruptedly, and no other food allowed.

“In a few instances, amounting to 6 or 7 per cent., which must be regarded as *exceptional* (the patient having been previously on a solid restricted diet) little or no reduction was produced in the excretion of urine sugar beyond the first or second day; in these cases, however, the disease was far advanced, with great emaciation and a feeble circulation; they soon came to a fatal termination, even although the skim-milk treatment was withdrawn after a short trial, and the patients allowed a full restricted diet of solid food and stimulants.

“In every case, without exception, in which the urine was excessively copious—ranging from eight to thirty-five pints daily—its quantity fell rapidly to six pints, or considerably below this quantity, in the course of twenty-four or forty-eight hours. But in very few instances, whether the urine was very copious or not, did its specific gravity begin to fall, or the percentage of the sugar it contained begin to diminish to any marked degree before the fifth or sixth day, even in cases in which the sugar entirely disappeared from the urine in the space of fourteen days. It follows, therefore, that no experiment undertaken to determine the action of milk sugar, as a constituent of milk in diabetes is of any value unless the observation is extended without interruption over ten days or a fortnight at least.

“In the next place a purely skim-milk regimen must be rigidly adhered to during the experiment (cream or butter being injurious as will be afterwards shown), while the addition of solid nitrogenous animal food, such as lean beef or mutton, invariably produces a decided and often very considerable rise in the quantity of urine sugar, if the case is severe or considerably advanced. This is an exceedingly interesting fact, of which I have convinced myself by repeated experiments, in relation to the pathology of diabetes.

“The discovery by these experiments, that lactose as a constituent of milk is certainly assimilated in diabetes, permits of a great revolution and

advance in the dietetic treatment of the disease, namely, that notwithstanding the restrictions imposed by Bouchardat, Dr Pavy, and their followers, a saccharine principle can be taken in large quantities by diabetics, not only with impunity but with great benefit. Because there can be no doubt that a proper admixture of starch or some form of sugar in the food is absolutely essential to the maintenance of health in civilised life, and that the complete withdrawal of these from the diet prescribed in diabetes must be highly injurious. It must be remembered too that lactose in the food of the infant is the analogue of the vegetable starchy and saccharine compounds consumed in more advanced life" (pp. 57-66).

The third chapter is a very important one, and yet we hesitate in quoting from it so much as would be necessary to give a complete idea of the argument. Dr Donkin believes that the conversion of fatty elements in the food into sugar is the main cause of the emaciation which is sometimes so early developed in this disease; while in other cases emaciation is absent up to a much later period, owing to the more perfect digestion and assimilation of fat in these cases. He makes the very acute, and, as we think, probably just observation, that if, in diabetics fed upon ordinary diet, the fatty elements in the diet underwent the normal transformation into binary products (carbonic acid and water) there would be an increase of the animal heat corresponding to the increased metamorphosis of fat, whereas it is well known that in such diabetics, even when largely fed on oily or fatty matters, the animal heat often remains abnormally low. That the habitually low temperature of the diabetic is not due to the non-absorption of the fatty matters into the blood is shown by actual experiments, in which diabetic blood has been found to be abnormally loaded with oil, and therefore the conclusion appears to be inevitable that when a confirmed diabetic adopts a fatty diet which is *apparently* assimilated, and yet does *not* go to nourish the system or increase the animal heat, it is because the fatty matter is rapidly transformed either into glycogen and thence into sugar, or directly into the latter, so as to be excreted without any benefit to the economy. The reasonings in this chapter are really ingenious and original, and they are, moreover, well supported by cases derived from Dr Donkin's experience, as well as by experiments quoted from Salomon of Berlin, Van Deen, Poggiale, and others, to the effect that glycogen is formed, even normally, out of fatty as well as saccharine and amylaceous food (see pp. 72-73); and, as it seems to be established beyond question (pp. 74-76) that glycerine administered to diabetics increases the amount of sugar in the urine (a fact we have ourselves



had occasion to observe), there seems to us to be cumulative evidence as to the inexpediency, if not the absolute danger, of adopting a fatty diet in advanced diabetes as a substitute for the amylaceous and saccharine elements. In his controversy with Dr Pavy on this subject, we think Dr Donkin quite holds his own, and makes it pretty clear to our convictions that the eminent and justly celebrated physiologist of Guy's Hospital has condemned the milk treatment on erroneous grounds, having given the milk in such association with albuminous and fatty food (the latter in large quantity) as to vitiate the experiment. In the remaining portion of this chapter (pp. 78-94), the author gives his reasons also for differing from Dr Dickinson, who condemns the skim-milk treatment on the double ground that the milk is "deprived of the cream, which in moderation might be useful, and contains the sugar which, in all but the mildest cases, is injurious" (p. 86). Dr Donkin, on the other hand, maintains that whenever milk has been shown to disagree, or to increase the quantity of sugar in the urine in diabetes, it is because of the cream, or fatty element in it, and by no means on account of the lactose; and he points out by a careful and detailed statement of the facts of two cases occurring at an early period of his own observations (1869) that rich new milk, when given in the very large quantities necessary to satisfy thirst, will sometimes absolutely *increase* the quantity of sugar in the urine as compared with a mixed, or a purely animal diet, while a transition to skim-milk at once greatly reduces, and sometimes almost annihilates, the abnormal excretion. We have found it impossible to peruse these cases without a strong sense of their value as evidence, and this value is the greater because they seem to show that the author was originally led to the use of *skim*-milk (as opposed to new milk or cream) by sheer experience, and not by *a priori* reasoning. His first volume, we must admit, had left us somewhat in doubt upon this point. For a like reason the author discountenances the use of cod oil in the advanced stages of diabetes, though admitting that in the earlier stages it may possibly be assimilated and may go to support the animal heat.

The fourth chapter deals with the mal-assimilation of the albuminous elements in the later stages of diabetes, and, although the remarks on this subject are interesting, especially the sketch of Cantani's discovery of *acetonæmia*, and the fatal complications thus arising, yet these facts are

not so essentially connected with the author's views as to treatment to induce us to dwell upon them. We must hasten to the last chapter, which contains the details of the treatment.

If we have rightly apprehended the course of Dr Donkin's observations, the adoption of milk diet in diabetes was in the first instance largely empirical, suggested simply by the idea of its being a very simple and natural, easily assimilated diet. Gradually he was led, also by direct observation, to abandon the cream as probably unsuitable and tending to neutralise the good effects of the other elements of the milk; and in some cases he was led by the hunger of the patient to increase the caseine in the form of curd, whereby he acquired the strong faith he now possesses in *fresh caseine* as "capable of resisting the mal-assimilating or sugar-forming power of diabetes to a very much greater degree than any other form of albumen. "To this fact," he adds, "for fact it is beyond all doubt, must be chiefly attributed the potency of a purely skim-milk regimen in arresting or mitigating the disease" (p. 98). In other words, the caseine is not only in itself the most easily assimilated form of albumen for the diabetic subject, but it has also the property of securing the lactose from change into diabetic sugar, and assisting its transformation into lactic acid, whereby it fulfils the normal function of sugar in the economy.

If we could persuade ourselves finally that this was really the order in which the facts presented themselves, and that the theory which Dr Donkin announces was really secondary, we should cease to regard the latter with the amount of sceptical suspicion that we do at present. For we hold ourselves bound to confess that we have actually seen surprisingly good results from the skim-milk treatment in diabetes: although we do not as yet feel confident that we have seen any *absolute cures*; and on the other hand, we have been in some cases disappointed, perhaps from the tendency, which Dr Donkin acknowledges as one of his greatest difficulties, to weariness of the patient, after a time, at the monotony and apparent poverty of his diet. In this respect the new treatment does not escape the difficulties and fallacies which have attended all the compulsory systems of regulated diet in diabetes from Rollo downwards; but we have no hesitation in saying that whatever its ultimate fate, the *first* experience of it is often most satisfactory, and that in our opinion it is entitled to more deliberate attention than it has

yet received from some considerable authorities. We have, in at least two cases of confirmed diabetes, been able for weeks, and in one for months, to keep the excretion of sugar all but *absolutely* under control by Dr Donkin's method. We must, therefore, even while declining to accept, in the meantime, his whole theory and practice, express an earnest wish for further and impartial trials, while we feel bound to protest against the almost contemptuous, and certainly unfair, manner in which the statements of apparent fact in this and the former treatise have been in some cases set aside by those who could not accept the theory. We have endeavoured to show how far Dr Donkin has himself to blame for this; but none the less we desire to support his claim for a fair hearing, and also a fair trial, of the method which he proposes, *pure et simple*. The cases contained in the last chapter of this work, some of them under the care of Dr Donkin himself, others recorded by such excellent observers as Dr Headlam Greenhow, of Middlesex Hospital, and Dr Fyffe, of Netley, ought to arrest the attention even of those who cannot accept the whole doctrine of diabetes, as taught in its pages. But as the details would occupy too much of our space, we will simply make one more condensed, but still long extract from the last chapter, embodying the principal practical suggestions and precautions in it, apart from the detailed evidence:—

“ I do not intend to repeat here the rules to be followed in applying the skim-milk treatment already published in my work on the subject, to which I must refer for fuller information. I shall, however, mention in addition to the *cardinal rule*, that the skim-milk regimen *must be exclusive*: that the quantity of skim-milk—*properly prepared by a careful removal of the cream*—beginning with four, five, or six pints on the first day, must be increased more or less gradually, according to circumstances, to eight, nine, ten, eleven, or twelve pints in the twenty-four hours, according to the age, sex, size, and condition of the patient. No rule as to quantity can be laid down to suit individual cases; it must be regulated to suit the requirements of each; *but in no instance should it exceed twelve pints*. Not more than seven or eight pints should be taken in the natural fluid condition. When a larger quantity is necessary the surplus should be made into curd by the essence of rennet and taken at separate meals; too much fluid is thus prevented from being taken into the system, while a much larger quantity of flesh-forming material in the form of caseine—in combination with salts—is supplied.

“ In the next place, the skim-milk may be taken cold, or warmed to a temperature of 100° or so, as the patient may desire; *but it must not be boiled*; because a temperature of 212° alters the physical properties of caseine, and, as I have found by experience, greatly impairs its therapeutic properties. The specific gravity of the skim-milk used should never be below 1035; that of the best quality is 1040. The daily allowance must be divided into regular meals.

"It is necessary to mention that when a skim-milk diet agrees with the patient, as it almost always does with diabetics, it generally produces constipation, which must be carefully remedied by the frequent administration of castor-oil, or of some mild saline aperient. Attention to this condition is of the utmost importance.

"Diarrhœa, though not of frequent occurrence under judicious management, can without much difficulty be remedied by care and attention to the digestive organs, and by the temporary reduction of the quantity of skim-milk, together with the administration of mild astringents. When it proceeds from indigestion, which is seldom the case, I have found the essence of rennet given in half-drachm or drachm doses in a little water immediately after each meal of great service.

"A most important feature of the treatment consists in the accuracy with which the daily allowance of food can be measured and regulated from day to day. Besides, instead of being repugnant, and at length, in most cases, intolerable to the taste and appetite of the patient, I have, without exception, found skim-milk highly grateful to diabetics, especially when first administered and the symptoms of the disease are severe, in consequence of their sudden subjugation, especially of the thirst, which is often so very distressing."

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"If in any given case the sugar continues absent from the urine and health is simultaneously restored, we must regard the success attained to be *complete* and the disease to have been cured, and to remain cured so long as these conditions continue. But if the sugar, *even in small quantity, remains permanently in the urine, although a feeling of health may have been restored to the patient*, then the success will be only *partial*, although it may be very considerable in degree."

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"Although the urine when very copious rapidly falls under the treatment to a quantity which is normal in proportion to the fluid ingesta, its specific gravity seldom begins to decline before the fifth or sixth day, after which, in successful instances, it rapidly decreases until the sugar disappears entirely from the urine, when it falls as low as 1010, 1008, or even lower.

"I have already stated that I have met with a small percentage of cases wherein little or no good was effected by the skim-milk treatment, and in these there was no reduction of the quantity of the urine-sugar beyond the first or second day, after which the specific gravity of the urine continued persistently and uniformly high. Such cases, however, were far advanced, and soon came to a fatal termination, although the treatment was discontinued after a short trial. I have given the details of one of these at page 119. From the experience thus gained I have come to the conclusion that if there is no progressive reduction of the specific gravity of the urine and of the sugar it contains after the expiration of a week (all rules having been strictly observed), little or no good will be produced by the treatment, which may then be discontinued, to prevent it from being undeservedly brought into disrepute; such cases are, except in very young subjects, very far advanced and not amenable to any kind of treatment whatever."

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"When the treatment has been successful the patient should continue the skim-milk diet rigorously from a fortnight to six weeks after the disappearance of the sugar from the urine, in order that convalescence may

be confirmed and the danger of a return of the disease avoided. The *second stage* of the treatment should then be commenced.

"In this stage—which, as I have stated, is transitional, and precedes the period when a more permanent regimen can be prescribed—the quantity of skim-milk, if previously large, must be reduced and more of it taken in the form of curd (which can be made very agreeable by the use of 'seasonings'), and *in addition*, one or two moderate meals—according to the condition of the patient—of lightly cooked *lean* chop or steak, or of roast mutton or beef, with *green, non-starchy* vegetables, must be prescribed."

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"During this period of the treatment, which requires the utmost care and nicety, the urine must be tested daily; and, should the smallest portion of sugar be detected in it, the quantity of solid animal food must be diminished and the skim-milk increased for a while, and a greater restriction also placed on the vegetable articles of food, and greater care bestowed on their selection.

"Should the patient, under the regimen thus defined and varied as much as its limited resources will permit, progress favourably, and the urine continue free from sugar, fish may be allowed at the principal or dinner meal, which should be early; but the species selected should be *cod, ling, whiting, haddock, and skate*, which contain no fat except in their livers, which must be avoided. Salmon, salmon-trout and herrings are very oily fish, and must be forbidden; and so also oysters, the livers of which are rich in glycogen.

"After what has already been stated it is superfluous to repeat that all fatty or oleaginous substances and all vegetable articles of food and drink containing starch and sugar must be avoided with the most scrupulous care, because an indulgence in them *at this particular period will generally cause a return of the disease*, which, when thus re-induced, frequently assumes an intractable and virulent form.

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"The period over which the second stage of the treatment must extend is subject to great variation, and depends on the conditions pertaining to individual cases; more especially on age, idiosyncrasy, and the degree to which the disease may have been developed before the patient was placed under treatment. In some instances it may be limited to a few months, in others a very much longer period will be required before a greater variety of food can be indulged in without a recurrence of sugar in the urine and of the disease.

"The third stage, in which a more permanent dietary is prescribed, should be gradually developed out of the second by the addition of a much greater variety of animal and vegetable food.

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"But after complete recovery, in a large majority of cases, a most careful avoidance must be practised of the more starchy articles of ordinary vegetable food, such as bread, pastry, and all substances into which flour enters; potatoes, peas, beans, carrots, turnips, Indian corn flour, and rice—to say nothing of sago, arrowroot, and tapioca, which consist of starch. This restriction applies equally to sugar in any shape or form, whether existing in solids or liquids.

"Indulgence in any of the prohibited articles of food or drink—at least before a long and indefinable period has elapsed after convalescence—will almost certainly be followed by a return of the disease, as I have said,

in the majority of instances. And when the malady is so reinduced it is generally of a much more intractable character than on its first invasion.

“The fact should always be clearly explained to those who have recovered from an attack of confirmed diabetes that, on account of *idiosyncrasy*, a strong tendency to a return remains behind, to prevent which it is absolutely essential that they should continue to live by the rules prescribed for them—each individually—in the avoidance of all kinds of food and drink, and mode of living, which act perniciously and are prone to re-induce and re-establish the disease. With them, as a rule, a cure is altogether *conditional*: they may continue free from the malady and in the enjoyment of health so long as they curb their appetite and inclinations, *but no longer*. The pleasures of the table must to a great extent be abandoned, and, instead, a simple, nutritious, and at the same time agreeable regimen adopted.”

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It only remains to state that in the later stages of the cure, when it has become relatively safe to allow some of the substitutes for bread, Dr Donkin recommends one that he has had manufactured through Mr Van Abbott, of Princes Street, Cavendish Square, consisting of 80 per cent. gluten and 20 per cent. bran, and a very small quantity of butter. This he finds to be preferred either to the gluten bread of Bouchardat or the bran cakes of Camplin. All the usual directions of a hygienic kind are strongly insisted on by the author.

The work demands a good index: its somewhat desultory style makes this want very apparent to even a careful reader in re-reading it. But in all the other requisites of a scientific treatise it is to be preferred to the former and larger book.

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IX.—ON STETHOMETRY; being an Account of a new and more exact Method of Measuring and Examining the Chest, with some of its results in Physiology and Practical Medicine. *By* ARTHUR RANSOME, M.D., M.A. (Cantab.) London: Macmillan & Co. 1876.

DR ARTHUR RANSOME, who has for some years given attention to chest measurements, in this book lays his results before the profession. The instruments with which his observations were made are four in number—a *chest rule*, which is a flexible metal plate, divided into squares which measure an inch on each side; a *three-plane stethometer*, which gives the amount of upward, outward, and forward movement of any point of the chest to which it is applied; a *goniometer*, for measuring the angle of inclination of each rib to the perpendicular; and fourth, a *stethograph*, consisting of an arrangement of jointed levers, by which the course of any point of the chest wall is traced through the whole course of a complete respiration movement.

The *chest rule* is unquestionably serviceable in the exact localisation of any condition of the thoracic organs. The author gives an account of fifty-one observations made with it by Mr Patchett, of Manchester, to determine to what extent the position of the apex beat of the heart is affected by the posture of the body. The conclusion arrived at is, that change from the horizontal to the upright affects the position of the apex beat much less than change from one side to the other—the former in twenty cases producing no effect whatever, and in the remainder only from  $\frac{1}{4}$  to 1 inch of difference, while in the latter the maximum alteration of position was  $5\frac{3}{4}$  inches, the minimum 2 inches, and the mean  $3\frac{3}{4}$  inches. This latter result, however, will scarcely be accepted until it has been confirmed by other observers in a much larger number of cases.

The measurements got with the three-plane stethometer were, as regards the forward movement of the chest, different from what he expected from mathematical calculation previously made—the data of this calculation being the chord lengths of the ribs and the angles made by these with the perpendicular. This discrepancy was considerable, the forward movement in relation to the upward and outward being from two to three times as great as from calculation it should have been. He accounts for this difference by supposing that in inspiration the chord-length of the rib is lengthened by an inbending process which lessens the costal convexity. But on this point his experiments with calipers don't appear very convincing; and his stethograph tracings, which are supplementary to this, do nothing whatever to settle the question. They merely show that each point of the anterior surface of the chest returns to its place of rest at the end of expiration, by a path different from that by which it attained to its inspiratory position. And in this course there is no regularity as regards apparently similar respirations—at one time the inspiratory, and at another the expiratory path being most anterior, and not unfrequently the two interlacing. In coughing, sneezing, &c., these tracings are extremely complicated.

In a chapter on the *respiratory motive powers*, he is of opinion that the old doctrine of Hutchinson, that the external intercostals are inspiratory, and the internal expiratory, is substantially correct; but he thinks that the two layers acting together would contract the cavity by a bending action on the anterior wall of the chest.

He thinks the three-plane stethograph will be particu-

larly useful in aiding the diagnosis of the early stage of phthisis, and gives several cases in illustration. He also records cases where he employed it in diagnosis and prognosis in other diseases than phthisis, but its utility in these is not striking.

The book is well worth a careful perusal.

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## Public Health Department.

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ON THE INFLUENCE OF "THE FRIENDLY SOCIETIES ACT, 1875,"  
UPON THE PROPORTION OF UNCERTIFIED DEATHS IN GLASGOW.

*By* JAMES B. RUSSELL, B.A., M.D., *Medical Officer of Health, Glasgow.*

In a recent report upon uncertified deaths in Glasgow, I showed that on an average 22 per cent. of the deaths registered yearly in Glasgow were uncertified. This conclusion was based upon the statistics of the three years 1872-3-4, and it was supported by those of 1875. It was therefore surprising to find, in studying the mortality tables for the quarter ending 31st March, 1876, that the proportion of uncertified deaths was only  $15\frac{1}{2}$  per cent.

That this was a change having some explanation in fact, was made almost certain by this consideration, that taking the past three years in quarters, in no one quarter was the proportion as low as  $15\frac{1}{2}$ . The nearest approach to this was  $18\frac{1}{2}$  per cent., from which it ranged up to 25.

Two broad features of this decrease are these:—(1) It is general in all Registration Districts of the City. (2) It is most marked below 5 years of age, and especially below 1 year. Thus, the lowest proportion of uncertified deaths below 1 year in any quarter for three years was 35 per cent. In the first quarter of 1876 it was 26 per cent. The lowest proportion at 1 year and under 5 years in the previous quarters was 22 per cent. In the first quarter of 1876 it was 19 per cent. On the other hand, while the lowest



proportion at 5 years and upwards in previous quarters was 12 per cent., in the first quarter of 1876 it fell only to 11 per cent. If we take the percentage, *certified*, instead of uncertified, we get the following contrast:—

	Under 1 year.	1 and under 5 years.	5 years and upwards.
Highest percentage certified in any previous quarter, ... ..	65	78	88
Percentage certified in first quarter, 1876, ... ..	74	81	89
Percentage of increase, ... ..	13·8	3·8	1·1

Regarded as an increase in the proportion of certified deaths, it may therefore be said that the measure of the change in the first quarter of 1876 amounts to 14 per cent. below 1 year, to 4 per cent. at 1 year and under 5, and to only 1 per cent. at all ages above 5 years.

Although we have only the results of one quarter's registration to deal with, yet the improvement is so marked and so peculiar also in its nature, that we are quite warranted in inquiring—what is the probable cause? At page 62 of the "Report on Uncertified Deaths," already referred to, there is the following paragraph:—

*"Friendly Societies Act.*—Although not a 'suggested' but an applied and existing remedy of 'uncertified death,' we may most fitly here direct attention to the 'Friendly Societies Act' of last Session of Parliament. In this Act it is recognized that the circumstance, that on the death of a person a money payment becomes due, necessitates extreme precaution in accepting any statement as to the cause of death *which is not duly certified*. It is, therefore, enacted (Sect. 14) that 'no society shall pay any sum of money on the death of a member' unless on the production of a certificate of registration. But in reference to children under 10 years of age, it is enacted (Sect. 28) that 'no such certificate shall be granted unless the cause of death has been previously entered in the register of deaths on the certificate of a coroner, or of a registered medical practitioner who attended such deceased child during its last illness, or except upon the production of a certificate of the probable cause of death under the hand of a registered medical practitioner, or of other satisfactory evidence of the same.'

Those clauses of the Act only came into force in 1876, and no doubt will effect an improvement to some extent."

In reply to a circular letter addressed to each of the Glasgow Registrars, directing their attention to the facts given in more detail above, and asking for any information which they might think would explain them, and particularly whether the improvement was in their opinion in whole or part due to the provisions of the Friendly Societies Act—I find that they are perfectly unanimous in ascribing the change to the operation of that Act. There can be no doubt they are right. The effect is most apparent exactly where the cause is most operative, viz., below 10 years of age. As to the proportion of deaths coming within the influence of the Act, I hope soon to collect general statistics; but meanwhile the Registrar of Blythswood District states that above 27 per cent. of all his deaths were in Friendly Societies, and that of those 91 per cent. were certified, while of those not in such Societies only 65½ per cent. were certified.

It will be observed that for deaths under 10 years of age of persons entered in a Friendly Society there must be produced either (1) a certificate of the cause from the medical attendant, or (2) a certificate of the probable cause under the hand of a registered medical practitioner, or (3) "other satisfactory evidence of the same." In reference to this evidence, stringent instructions have been issued by the Registrar-General as to what he considers "satisfactory," *e. g.*, a declaration emitted before a Justice of Peace or other magistrate by a person not pecuniarily interested in the death, &c. In experience the Registrars find that declarations under the third head very seldom require to be had recourse to. In some cases the parents procure certificates from practitioners who have seen the deceased casually, and in others not so seen in life, a medical man is got to certify the "*probable* cause of death." The cases which in England would be referred to the coroner, unless glaringly suspicious, and in view of the fact that a pre-cognition from the Procurator-Fiscal might be months, and would certainly be weeks, before being reported to the Registrar, are mostly accounted for by "other satisfactory evidence," one form

of which is a "Certificate of the Result of an Enquiry by the Police (to be signed by the superintendent, lieutenant, or other officer of police)."

The operations of the Friendly Societies Act in reducing the number of uncertified deaths are thoroughly satisfactory only in so far as they promote the production of a certificate from a medical attendant. All other methods of meeting the requirements of the Act are but makeshifts and modes of patching up the defect of an ordinary official inquiry into the death of persons who have not been seen in life by a qualified practitioner. Evidently in all cases of death of a person whose decease brings pecuniary advantage to those who are responsible for the adoption of means for the prolongation of that person's life, such glaring neglect of those means as is involved in the want of medical attendance is on the face of it criminal. The criminality ought to be *ipso facto*, and inquiry ought to follow with the declared object of disproof. In terms of the Act the amount for which children under five years can be insured is limited to six pounds, and above five years and under ten years to ten pounds; and effective precautions are imposed to prevent the evasion of this rule by entering a child in more than one society. This limitation acknowledges the reality of a risk that sums above those named may burden the life insured with a prospective profit contingent upon its termination, which may outweigh the natural and moral inducements towards its preservation. So ample and convincing was the evidence brought before the Select Committee of the House of Commons on Protection of Infant Life (1871), that a suggestion was made in their Report (p. vii.), "that no infant or very young person should be entered in a burial club, or become the subject of life insurance." Mr J. B. Curgenien, surgeon and secretary to the Harveian Medical Society and to the Infant Life Protection Society, gave evidence before that committee that, "According to the official figures, 18 in 100 children of the upper classes annually die in Preston before attaining the age of five years; in the middle class 36 or 37 per cent. in these same

districts. While infants of labouring men outside the clubs die at the rate of 36 per cent. before reaching five years, children of the same class who are insured in burial clubs die at the rate of from 62 to 64 per cent.; and I received confirmation of that statement from Derby and Nottingham and Leeds, and various other towns where these burial clubs exist." This, however, it may be said, refers to England; but before the same Commission, the evidence of Dr Cameron, now M.P. for Glasgow, and of the Special Commissioner of the *North British Daily Mail*, leaves no doubt that the same abuses exist here. It is proved that in the adoption (as the getting-rid process is euphuistically termed) of illegitimate children, their immediate entry in a Burial Society with the prospective profit is one of the elements which are nicely considered in the fixing of a low primary payment. We commend the following extract from the Commissioner's evidence to those who cannot get out of the way of thinking of babies as necessarily beloved and cherished, stronger in their weakness than the strong man in his strength.

"4442. (*Mr Charley*).—Have you investigated the question of the Burial Societies?—Not very minutely. My attention was chiefly drawn to the fact that a good many of those women who had the children, registered them in a Burial Society.

"4443. Is it the ordinary benefit by which for the weekly payment of a half-penny, with an entrance fee of a penny for a new-born child, if continued for a year, the insurer is entitled to a benefit of £2?—Something like that: a penny and four-twelfths.

"4444. And a weekly payment of a penny and an entrance fee of twopence would entitle the insurer to a benefit of £4?—Yes.

"4445. And if the child, after six months' subscriptions have been paid, die at any time within the year, the insurer is entitled to half the amount insured; and if death occurs before six months, in many societies the amount subscribed is returned? The report states that 'The sum for which one of the chief firms of undertakers in this city performs the funeral of a child

of one year is but 14s, including cab, coffin, and grave,' and so on. I think you stated that the baby would be adopted in some cases for £5?—Yes.

“4446. So that it would be £5 for the adoption and £3 benefit from the Burial Society?—Yes, but if *the baby is killed in the usual way, that is by slow starvation, they would get the whole amount by extending the process over the whole year.*”

It had been long before stated, as Dr Lyon Playfair reminded the committee, in the Reports of the Health of Towns Commission, 1846 and 1848, that collectors of various rates, such as water-rates, sewer-rates, &c., had testified to their suspicions of burial clubs, based on the fact that delay of payment was often asked for on the ground that a child was about to die, and its death would enable the parties to meet their liabilities! In the face of such facts the original draft of the Friendly Societies Act, when submitted as a Bill to the Legislature, prohibited the entry of children of tender years in such Societies, but the usual vision of working men incurring long doctors' bills and sick-expenses rose up before the House, and the provisions of the Bill were modified as already described.

I am unwilling to burden the statistics of one quarter's experience of the working of the Friendly Societies Act with inferences beyond those stated at the beginning of this paper, but I venture to predict that when this experience has extended to a year, the results will startle our dreaming sentimentalists. Meanwhile I may be permitted to ask the profession to be chary in granting certificates of the “probable cause of death” of children who are entered in a “Friendly Society,” and for whom, in their last illness, no medical attendance was procured during life. In the case of an illegitimate child I can hardly imagine any circumstance which would justify such a certificate. The evidence of one quarter is quite sufficient to satisfy me that illegitimates are very commonly so entered, and that they are very rarely provided with the advantages of medical care and advice during their fatal sickness. Mr Plimsoll has proved that a ship may be insured for such a sum, that to scuttle and sink her is made profitable; and child-life has so little intrinsic value in the eyes

of a considerable proportion of our urban population, that the petty gain accruing through a Friendly Society on its termination is enough to destroy any desire for its prolongation. Rousseau confessed that the acquisition of a pair of trousers by the last will and testament of a friend considerably interfered with the purity of his grief on the decease of the friend, and there are too many parents and commercial guardians of infants who have all the cupidity and none of the candour of the French philosopher.

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## Exchange Journals.

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By Dr JOSEPH COATS.

STRICKER'S JAHRBÜCHER.

PART IV. 1875.

CONTENTS.—The Hereditary Transmission of Syphilis, by Dr M. Kassowitz, Vienna.

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THIS paper occupies the whole number, and conveys the results of the author's somewhat extended experience. His observations were made at the Hospital for Children in Vienna, and there he sees about thirty or forty cases of inherited syphilis in the year. The first part of the paper is devoted to the question as to the mode in which syphilis is transmitted. The possible methods may be divided into two—(1) Direct transmission by the sperm or germ cell being infected by a syphilitic father or mother; (2) Infection *in utero* from a syphilitic mother. The depth and seriousness of the affections in inherited syphilis, suggest at once that the infection is by the first method, and has involved the creature from its generation, and this view is supported by the author's own observations. Out of 119 cases he finds that the inheritance was clearly from the father in 43 cases, the mother being healthy in that number; both parents were syphilitic in 23 cases, the mother alone in 10; in the remaining 43 cases the mode of inheritance was doubtful. These statistics indicate that the father is most frequently the

source of infection, and they corroborate the view that a healthy mother may bear a syphilitic child. He believes, in fact, that this is a frequent occurrence. Intimately related to this is the question whether a child, who is syphilitic from the father, can infect the mother through the placenta? and the author believes that there is no evidence of this. Similarly a syphilis acquired by the mother during pregnancy is not transmitted to the child. The syphilis of the mother may cause abortion, may affect the nutrition of the fœtus, but unless the mother has been syphilitic at the period of conception, she does not transmit it. Syphilis is therefore transmitted either by father or mother only at the period of conception. This leads to some interesting speculations as to the form or vehicle of the syphilitic virus. It must be more stable than that of other infective diseases. It seems only carried by corpuscles, such as those of blood or pus, and such bulky objects are not capable of passing the septa between child and mother. It is not conveyed in milk, or blood serum, or vaccine lymph, unless these contain some such corpuscles. In this respect it differs from the virus of measles or smallpox, which again may be communicated during pregnancy by mother to child. The virus of these is volatile as compared with the more fixed syphilitic poison. Then it is noted that the intensity of the virus diminishes in direct arithmetical proportion with the lapse of time. The first child after a recent infection will die in utero at the fifth or sixth month, the next will live till the seventh or eighth month, then a child may be born alive at full time, but with an eruption of pemphigus, or the eruption may begin during the first days of extra-uterine life, or in later cases not till the second, third, or fourth week, or it may be delayed till the second or third month. If the first occurrence of the eruption is delayed to the third month, the intensity is already much diminished in the parents. It is exceptional for a child to be born alive during the earlier years after infection of the parents, unless mercurial treatment has been used, and almost all children born in the first year are premature. All these facts point to the virus being coarse, and almost measurable in its quantity. According to the author's cases, syphilis may be transmitted fourteen years after the original infection, but on an average it stops at ten years. It may be transmitted during the entire absence of symptoms, and the intensity of the symptoms in the child seems entirely independent of the presence of manifestations in the parent. Lastly, inherited syphilis may intensify other diseases, such as scrofula, phthisis, rickets, but

it does not directly produce these. It is a perfectly definite and distinct disease, with characteristic phenomena, which the author in a future paper proposes to describe.

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PARTS I. AND II. 1876.

CONTENTS.—I. On the adherent pericardium, by Dr Nathan Weiss. II. The histology of lupus, with a contribution on retrograde metamorphosis in general, by Edward Lang, Innsbruck (Pl. I.). III. The etiology of herpes zoster, by Dr Kaposi (Pl. II.). IV. Report on the cases of typhus observed in the clinique of Prof. Löbel during 1875, by Dr M. Heitler. V. Contribution on the vaso-motor nerves, by N. Böhling. VI. Address delivered on his entrance on the office of Rector, by Carl Langer. VII. The mechanism of the hip-joint, by Prof. E. Albert, Innsbruck (Pls. II. to VIII.). VIII. Contribution on the Pacinian bodies found on the sympathetic plexuses of the abdomen in man, by Dr A. Genersich, Klausenburg (Pls. IX. X.). IX. Granulation tissue, and its significance for scrofula, by Dr J. Rabl (Pls. XI. XII.). X. Contribution on diphtheria, by Prof. G. Bizzozero, Turin (Pl. XIII.). XI. On phenomena of motion in the cervix uteri, by Prof. Hofmann and Dr v. Basch. XII. Contribution on the saccharifying ferment in the animal organism, by Dr M. Abeles, Carlsbad.

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I. **Adherent Pericardium** (*Weiss*). This is an interesting paper, but too comprehensive to abstract with any degree of completeness. Passing over the historical part of the paper, and the part which treats of etiology, we have to remark that adhesion of the pericardium produces different effects on the muscular tissue of the heart, according to its nature. If the adhesion is loose, the heart itself may be but little altered; but if the adherent and thickened pericardium forms a firm, fibrous capsule, then the heart is dilated and generally hypertrophied. This latter condition, or an approach to it, is more frequent, and it leads to the most recognisable signs of adherent pericardium. The most frequent of these is increase of the cardiac dulness commonly associated with indistinctness of the apex-beat. Along with this the area of dulness is frequently unchanged during inspiration and expiration; but as this occurs in other cases where the anterior borders of the lungs are fixed, it is not a sign to be depended upon. Of much greater consequence, when present, is the existence of a drawing-in of one or more intercostal spaces, or even of the whole lower



part of the thorax, during the systole of the heart. The cause of this systolic depression is here fully discussed, and the author concludes that it exists in two classes of cases. In the one there is fixation of the base of the heart, with mobility of the apex; and in the other the apex also is fixed by the adhesions. In the former case the occurrence of the drawing-in of the intercostal spaces and lower part of the thorax is not difficult to explain. In the normal state, the base of the heart passes downward during the systole, and this downward movement more than compensates for the shortening of the heart and the upward movement of the apex, and so the apex beat is rendered possible. But if the base is fixed, then the apex during the systole is drawn up, and with this there is a depression of the intercostal spaces. Of the other class of cases, no sufficient explanation has been given. The author here refers to a peculiar form of pericardial adhesion, which Kussmaul has described. In some cases the thickened pericardium gives rise to firm, fibrous bands, which, as they often connect the upper part of the sternum with the large vessels of the base, frequently twist and contort these vessels, especially the aorta. If this vessel is thus fixed to the upper part of the sternum, it will be specially constricted when the sternum is raised in inspiration; and so the peculiar symptom in these cases is a marked diminution of the pulse during inspiration. As to the subjective symptoms in adherent pericardium, these are at first very unobtrusive; but, as dilatation occurs, they come to simulate those of cardiac disease in general.

**III. Etiology of Herpes Zoster (*Kaposi*).** Since Bärensprung started the idea, herpes zoster has usually been looked upon as due to some affection of the ganglia of the posterior roots of the spinal nerves, or of the corresponding ganglion of Gasser in the case of the fifth nerve. He came to that conclusion entirely on theoretical considerations, and it is interesting to trace the steps by which he arrived at it. He said that the affection could not well be in the spinal cord, else it would probably be bi-lateral. Then it was probably not an affection of the stem of the nerve, because it affects all the twigs, even those which come off near the origin of the nerve. Besides, there are almost never any motor phenomena; and if the nerve stem of a compound nerve were affected, we should expect to have more evidence of the motor part being involved. Bärensprung observed that in the spinal ganglia there are sets of fibres which pass

through the ganglia, and sets which arise in it from the ganglion cells, which are usually unipolar. These fibres are presumably trophic, and it is they which are affected in herpes. This theoretical conclusion has been confirmed by observation of the few cases which have come to *post-mortem* examination; and the present author contributes a case which he considers less complicated than any yet published. There was a zoster lumbo-inguinalis, and he found the ganglia of the posterior roots affected in the case of the first, second, and third lumbar nerves, and to a less degree of the fourth and fifth. The ganglia were enlarged and adherent to the surrounding fat, and the three upper ones presented overfilling of the vessels, hæmorrhage in the adipose tissue around and in the ganglia, and destruction of some of the ganglion cells. This case is therefore confirmatory of Bärensprung's view, although the author is careful to say that possibly some cases may be due to disease of the nerve stem.

**V. Vaso-motor Centres in the Cord (*Böhtling*).**—This author agrees with Goltz, that there are vaso-motor centres in the spinal cord, which may act on the vessels after cutting the cord, and which may be paralyzed by narcotics such as chloral hydrate. His results differ, however, from those of Goltz in respect to the vaso-motor fibres in the sciatic. Irritation of this nerve, the present author always found to contract the vessels, lowering the temperature, whereas Goltz obtained the opposite effect. The author suggests that there may be inhibitory fibres in the sciatic which cause dilatation of the vessels, and that Goltz may have irritated them, while his mode of experimentation did not. Stricker adds in a note that he has, since the above paper was written, actually proved the existence of such depressor fibres, which he will describe in a future paper.

**VIII. The Pacinian Bodies in the Abdomen (*Genersich*).**—This is a very elaborate paper, in which the appearances of these bodies in different diseases is carefully described. He looked for them in a series of post-mortems, and only in 9 cases out of 82 did he fail to find them, 7 of these being persons with very abundant fat, in whom such small bodies would be difficult to find. It may be stated generally that they vary greatly in number and size, their bulk generally increasing as life advances, varying from 1 millimetre up to 4. The Pacinian bodies are the end organs of certain of the fibres of the sympathetic in the abdomen.

**IX. Histology of Scrofula (*Rabl*).**—This author believes that in the various scrofulous processes, the characteristic occurrence is the formation of a special form of granulation tissue, and he would regard the whole process as a specific inflammation.

**X. The Spleen and Lymphatic Glands in Diphtheria (*Bizzozero*).**—This author has found in the spleen and lymphatic glands a special lesion which has not been hitherto described. In the spleen of diphtheria, whether enlarged or not, the lymphatic (Malpighian) follicles present in their central parts a collection of cells which are larger than the lymphoid cells of the follicle, and contain several nuclei as well as fat granules; a similar condition is found in the follicles of the intestine and some of the mesenteric glands. Sometimes the process is so advanced that at first sight the whole centres of the follicles, in the spleen or elsewhere, seem composed of granules. The author adds that in 2 cases of diphtheria he has found a membranous inflammation of the mucous membrane of the stomach, the condition being essentially similar to what is so common in the larynx, but unusual in this situation.

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VIRCHOW'S ARCHIV.

VOL. LXV., PART III. DECEMBER, 1875.

CONTENTS.—XXIII. Formation of an amyloid tumour in the tongue and larynx, by Dr E. Ziegler, Würzburg (Plate XV.). XXIV. On the relation of the blood and lymphatic vessels to the system of serous channels (from Recklinghausen's laboratory), by Dr P. Foà, Mantova. XXV. Anatomical investigations on lupus, by Dr Richard Thoma, Heidelberg (Plate XVI.). XXVI. Contribution on mycosis, by Prof. C. J. Eberth, Zurich. 1. Primary infective periostitis. 2. Mycotic endocarditis. XXVII. On regeneration of the terminal nerves of the cornea (from the Pathological Institute at Zurich), by Gr. Bogoslawskoy, St Petersburg. XXVIII. Contribution on the syphilitic separation of the epiphysis (from the Pathological Institute at Zurich), by Dr O. Haab, Zurich (Plate XVII.). XXIX. On structures simulating parasites in the human evacuations, by Prof. G. Fritsch, Berlin (Plate XVIII.). XXX. Spasm of the left side of the face in a case of aneurism of the left vertebral artery, by Dr F. Schultze, Heidelberg (Plate XIX., fig. 2). XXXI. Smaller communications. 1. Answer to the reply of Dr Orth, by A. Boettcher.

2. On digestion and absorption in the human large intestine, a protest by Dr F. A. Falck. 3. Some remarks on the reaction of oxyphlic acid with reference to its occurrence in human urine, by W. Ebstein and J. Müller. 4. Anatomical notes, by Dr W. Gruber, St Petersburg (Plate XIX., fig. 1). 5. On trichinosis, by Dr G. Borell (with a woodcut); addendum by Virchow.

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**XXIII. An Amyloid Tumour of Tongue and Larynx (Ziegler).**—This case presented the rather unusual occurrence of a tumour composed of amyloid substance. The case was a syphilitic one, and the author considers it likely that there was here first a gumma which had become amyloid. The shape of the tumour was suggestive of its origin in a cicatrix.

**XXIV. The Relation of the Serous Channels to the Blood-vessels (Föld).**—This paper contains the result of experiments on the frog, and is of interest as confirming some former views, and as rendering still more certain the intimate relation of the serous spaces with the blood-vessels on the one hand and the lymphatics on the other. In the first series of experiments the observations of Arnold are confirmed (see this *Journal*, 1875, p. 390) in respect that after the vessels have been altered by a venous congestion, an injection-material thrown into the arteries penetrates from these vessels to the serous channels. But this author goes further, he finds that without any previous disturbance of the circulation he can inject the serous channels from the blood-vessels, if before the colouring matter a solution of phosphate of soda has been thrown into the vessels. With the living animal, however, his results are even more convincing, for he was able to inject the serous spaces without any previous washing out of the vessels with phosphate of soda. Under ordinary circumstances considerable pressure was needed to effect this, but if curare had been previously administered, it was much easier. The probability is that the injection in the former case irritates the vessels, and, causing them to contract, opposes a great obstacle to further injection. When curare is given the vessels are relaxed. The author has some further observations on the path by which the colouring matter passes from the vessels to the serous spaces. After injecting vermilion or China ink, he washed out the vessels, and then found that the pigment marked out the borders of the endothelial cells, just like nitrate of silver, that in fact the solid granules of pigment were stuck in the cement between these cells. This seems to show that the pigment passed out

through the cement substance, which must be a semi-fluid substance with interstices in it. Some further experiments seemed to show that in the neighbourhood of inflamed parts the vessel-wall is more permeable than normal. The author's injections were more successful in filling the serous spaces in such situations.

**XXV. Histology of Lupus** (*Thoma*).—It is well known that the nodules which form the essential part of lupus are composed of a lymphoid or granulation tissue, whose main constituents are round cells. This author finds that at the growing margins of the nodules, these cells appear first in the lymphatic spaces around the vessels. They are visible in these perivascular spaces at some distance from the nodules themselves. This relation to the perivascular spaces, however, is not peculiar to lupus, but only suggests that the process is intimately related to the blood-vessels. He finds in the centres of the nodules large and giant cells, which he supposes are derived from the round cells. The formation of these large cells is always the forerunner of degeneration, and it probably indicates some nutritive disturbance.

**XXVI. 1. Periostitis and Osteomyelitis from Micrococci** (*Eberth*).—Cases of diffuse idiopathic periostitis and osteomyelitis are difficult to understand. The local process develops with violent pain and fever, and phlegmonous suppuration of the neighbourhood extending to the joints. These manifestations are usually followed by secondary abscesses in the lungs and other organs, and Klebs and Recklinghausen have found minute organisms both in the primary seat and the secondary abscesses. This disease has, therefore, been looked upon as an infective disease, like pyæmia. A case by the author adds support to this view. He found in the veins of the affected periosteum (of the femur) multitudes of micrococci; and similar organisms, as well as fat drops, were found in the vessels of the lungs where secondary abscesses were developing. It is difficult to account for the presence of the organisms in the periosteum, but it is possible, as Lücke has suggested, that the part, being reduced in vitality by some injury, may be rendered capable of retaining and developing such organisms.

**XXVI. 2. Endocarditis with Micrococci** (*Eberth*).—This is one of those cases which are by no means very uncommon, where an endocarditis occurs, having for one of its peculiar features the existence of these minute organisms in

the part. There is frequently embolism with numerous abscesses developed in these cases, but in the present one, the position of the embolism was rather unusual, the left internal carotid was the seat, and the malignant or infective nature of the embolus was manifested by the existence of suppuration around the artery, extending to the optic and oculo-motor nerves and neighbouring membranes of the brain.

**XXVII. Regeneration of Nerve Twigs** (*Bogoslowskoy*).—When a superficial portion of the cornea is destroyed, the nervous network under the epithelium is regenerated in about five days. The process of regeneration is difficult to follow, but the author considers that it is by sprouting from the remaining branches.

**XXVIII. Loosening of the Epiphysis in Syphilitic Children** (*Haab*).—This process, which has been observed by various authors, is explained, by the present writer, differently from previous ones. He finds that the cartilage cells in the zone of proliferation do not hypertrophy, but rather proliferate still further, and then degenerate, so that a zone of debris comes to exist between epiphysis and diaphysis.

**XXIX. Structures Simulating Parasites** (*Fritsch*).—These are two cases in which structures were brought to the author as entozoa, which had been passed by the patients. They certainly looked like some extraordinary creatures, but on examination turned out to be the intestine of salmon in the one case, and of *Iota fluviatilis* in the other.

**XXXI. 5. Parasitic Worm in the Blood of Birds** (*Borell*).—A small worm is here described as found in the blood and other structures of the raven. The author calls it a trichina, but Virchow thinks it more like the *Filaria* described by Lewis, of Calcutta, as existing in the blood of man.

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VOL. LXV., PART IV. DECEMBER, 1875.

CONTENTS.—XXXII. On the currents of fluid in the living eye and the tissues, as a whole, by Dr M. Knies (Plate XX., figs. 1, 2). From Kühne's laboratory. XXXIII. On the question as to cholestearine (from the Pharmacological Institute of Berlin), by Dr V. v. Krusenstern, St Petersburg (Plate XX., fig. 3). XXXIV. On encephalitis diphtheritica, by

Dr L. Letzerich (Plate XX., figs. 4, 9). XXXV. On the therapeutic use of iodide of lead, with a general reference to the decomposition of iodides in the organism, by Dr J. E. E. Schönfeldt. XXXVI. Which pair of nerves supplies the tensor tympani, by Prof. Voltolini, Breslau. XXXVII. The treatment of diabetes by glycerine, by Dr J. Jacobs, Lochem. XXXVIII. Clinical contributions, by Dr Pye Smith, London. 1. Addison's disease. 2. Two cases of pernicious idiopathic anæmia. XXXIX. The occurrence of intermittent fever in Finnland, by O. Hjelt, Helsingfors. XL. On the distribution of the temperature in febrile diseases, by Dr Jacobson, Berlin. XLI. On the recognition of human and animal blood in dried stains, in its medico-legal aspects, by Dr Malinin, Tiflis. XLII. The apex beat of the heart, by Dr P. Guttmann, Berlin. XLIII. Smaller communications and notices. 1. On Bunge's method of imbedding tissues, by Dr E. Fleischer, Berlin. 2. Ferdinand von Heuss—Plates illustrative of surgical pathology. 3. Review of results as to trichina in the pigs examined, &c., by Dr Uhde, Braunschweig.

**XXXII. The Currents of Fluid in the Cornea** (*Knies*).—This is an interesting paper, but we can here only reproduce the conclusions. The currents within the eye pass generally from behind forwards. This seemed to be proved by the fact that when a drop or two of ferrocyanide of potassium was injected, with due precautions, into the vitreous humour of the rabbit, and perchloride of iron applied after the death of the animal, the Prussian blue developed almost altogether in front of the point of injection. The same direction is taken by the currents in the lens, the fluids to which have previously passed through the vitreous humour. The cornea is nourished from the anterior chamber. The aqueous humour is partly composed of fluid which has previously passed through the constituents of the eyeball, but this is mixed with fresh fluid from the ciliary body. This fluid has two means of exit, namely, through the cornea to the subconjunctival tissue, and from Fontana's space through the sclerotic. Puncture of the anterior chamber accelerates the currents in the eye, especially in the lens.

**XXXIII. The Presence of Cholestearine** (*Krusenstern*).—This paper is chiefly a correction of previous ones. It has been said that cholestearine is to be found in the urine of persons after a rich meal, or in the state of pregnancy, or with icterus, as well as in dogs into whose veins cholestearine has been

injected. The present author does not find it in these cases, and believes that former authors have been in error.

**XXXVII. Treatment of Diabetes with Glycerine** (*Jacobs*).—This is a rather long, and it must be confessed, a rather tedious paper. In two cases treated with glycerine there was for a time a steady decrease in the amount of fluid drunk while the sugar diminished. The weight of the patients increased, and the subjective symptoms improved. The glycerine was given with a mixed diet, in quantities amounting to 25 Cm. (about 6 drachms), along with 5 Cm. of tartaric acid.

**XXXVIII. Pernicious Anæmia** (*Pye Smith*).—Two cases of this interesting disease are related, and a *resumé* of the literature of the disease and of its symptoms given.

**XXXIX. Ague in Epidemic Form** (*Hjelt*).—The principal point in this paper seems to be that, according to the statistics given, intermittent fever occurs in epidemics, which rapidly reach their course, then diminish slowly for a time, and then suddenly end.

**XLI. Mode of Distinguishing Human Blood** (*Malinin*).—According to the author's methods it is not difficult to distinguish the blood of birds from that of man, and that itself is sometimes of consequence. A solution of potash in alcohol is prepared by leaving 90 per cent. alcohol on an excess of caustic potash for 24 hours. This solution is added to a fragment of the stain, which is then examined under the microscope. If the blood is that of a bird, innumerable nuclei appear, while in the case of a mammal white globules are observed. If the blood is that of a mammal, watery solutions of caustic potash being prepared, one 30 per cent. and another 32 per cent., a drop of each is applied to separate fragments of the stain. The blood corpuscles separate and can be measured under the microscope with the micrometer. The blood of ruminants is better examined with the 32 per cent. solution, that of others with the 30 per cent. The measurements of various kinds of blood corpuscles are given here, but in order to make the observations trustworthy, the individual observer should perform many test experiments.

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VOL. LXVI., PART I. JANUARY, 1876.

CONTENTS.—I. A contribution on spinal apoplexy, by Dr E. Goldammer, Berlin. II. Studies on the epithelium of the lungs, by Dr Küttner (Plates I., II.). III. Further remarks on the question of transfusion, by Dr Panum, Kopenhagen. IV. On the extirpation of one kidney and of the testicles in newborn rabbits, by Prof. von. Gudden, Munich (Plate III.). V. The changes in the brain and cord in tetanus, by Dr J. Elischer, Budapest (Plate IV.). VI. The cement substance of endothelium, by Dr J. Arnold, Heidelberg (Plate V.). VII. The relation of the central to the peripheral temperature in fever, by Dr W. Schülein, Berlin (Plates VI., VII.). VIII. On localised tuberculosis of the liver, by Dr J. Orth, Berlin (Plate VIII.). IX. The action of lactate of sodium in producing sleep, by Dr L. Meyer, Berlin. X. Smaller communications. 1. The question as to cholestearine, by Prof. Bencke, Marburg.

I. **Apoplexy of the Cord** (*Goldammer*).—Apart from traumatic cases it is rare to meet with cases of hæmorrhage into the cord. Two classes of cases have, however, been described, in one of which the hæmorrhage is due to myelitis and softening of the cord, and in the other it is spontaneous. Some have doubted the existence of this latter form, but the author considers his present case as possibly one in point. The patient lived a year after the attack, and a firm cicatrix was found in the upper dorsal part of the cord, with evidences of hæmorrhage in the form of hæmatoidin crystals and granular pigment. The remaining nervous substance in this part was much altered, and both above and below it there were secondary changes in the white substance, consisting in the formation of numerous compound granular corpuscles with increase of the neuroglia. These changes were present in the posterior white columns above the affected part, and in the lateral columns below it; the grey substance being unaffected, except just at the seat of the original lesion. The sudden onset of the symptoms was sufficient evidence that in this case the hæmorrhage was not due to myelitis. There were no premonitory symptoms, but the paralysis was perfectly sudden, reaching its height in about an hour. There was intense local pain, radiating into the regions of the intercostal and brachial nerves. There was absolute paralysis of the muscles of the legs, abdomen, and back, but reflex movement was retained throughout. We do not observe that the author discusses the question of embolism in this case, although appearances in the kidney are

described which may well be referred to this process. The spinal affection is also such as would be explained by embolism, although there is no clear indication of a possible source of the embolus.

**II. The Epithelium of the Lung-alveoli** (*Küttner*).—The question of the existence of a proper epithelial lining to the alveoli of the lung is one of some importance, not only as regards histology, but also in relation to pathological processes, and it has received considerable discussion. The present author, like most who have recently written, believes that there is a true epithelium lining the alveoli. On the basis of observations made at different periods of development and different ages, he concludes that both in foetal and extra-uterine life there is a layer which is immediately continuous with that lining the bronchi. The shape of these cells is determined by the space at disposal, they are cubical in the foetal lung, but when the alveoli open out on respiration becoming established, the cubical cells flatten out to the pavement shape.

**IV. Extirpation of one Kidney, and of the Testicles in New-born Rabbits** (*Gudden*).—This paper gives the very interesting results of a series of observations. The new-born rabbit stands the operation of extirpation of one kidney remarkably well, and the results here given are those obtained when animals so tested are full grown. In the first place, it would appear from them that the ureter develops independently of the kidney, for on the side of the extirpated kidney, though smaller than on the opposite side, it was still considerably developed. Then this ureter was found to contain muscular tissue, contracting on the application of Faradisation, the difference being that here the contractions were local, whereas on the other side they propagated themselves along the ureter. The chief interest centres on the remaining kidney, which was found very much hypertrophied, being in fact quite equal in bulk and in weight to two normal kidneys. The question arises how this enlargement has taken place, whether by multiplication of the normal constituents, or by simple enlargement of them. In the case of the blood-vessels there does not seem to be anything more than a simple enlargement. The Malpighian tufts were enlarged in the proportion of 41 to 30, but by two different modes of reckoning he comes to the same conclusion that their number is not increased. The larger and smaller arteries are increased in size along with the tufts. The

state of the urinary tubules as regards size and number he could not determine, chiefly because the normal limits of variation are so wide. The experiments by which one or both testicles were excised are not so interesting. He made these experiments to find the effect on the nervous system, and he proposes to prosecute them further before publishing the results in that regard. But in respect to local changes, extirpation of both testicles in the newly-born causes great imperfection of the vesiculæ seminales and vasa deferentia, extirpation of one caused slight diminution and weakness of the vesicula seminalis of the same side.

**V. The Drain and Cord in Tetanus** (*Elischer*).—The actual changes found by this author are fully described and resumed at pp. 74-75. He recognises two processes as lying at the basis of these changes. 1. An irritative process manifested in overgrowth of the connective tissue in general, and also of the epithelium lining the central canal of the cord and the ventricles. 2. A degeneration affecting the cells of origin of the fifth and seventh nerves, as well as of all the spinal nerves.

**VI. The Cement Substance of Endothelium** (*Arnold*).—It is interesting to find two sets of workers in the same field anticipating and confirming each other's results. In referring to the observations of one of Recklinghausen's pupils (see above p. 402) we had occasion to remark that his results confirm some obtained by Arnold, and now we find Arnold in an elaborate paper confirming the results obtained by that observer, and carrying them further. His object is to determine the path by which the fluid passes from the vessels to the serous spaces and lymphatics, and the relation of the cement substance of the endothelium to the passage. In his experiments, which were made on frogs, he injected, firstly, a dissolved pigment, the indigo-sulphate of soda; secondly, the ferrocyanide of potassium, whose presence could be determined by its yielding Prussian blue, with perchloride of iron; and thirdly, a granular solid pigment, China ink rubbed down in salt solution. These were in various ways injected into the living animal, with the general result, that in passing from vessels to serous spaces, from serous spaces into lymphatic vessels, and from serous spaces into serous cavities, the substances, whether dissolved or granular, took their way through the cement substance. That is to say, the spaces between the endothelium cells were

coloured in all these cases, and the cells thus mapped out. The connection of the cells must thus be a loose one, and the so-called cement substance either a fluid or a gelatinous material. Under normal conditions it will be chiefly fluid which passes by these channels, but a few white corpuscles may. Under pathological condition, however, there is much greater transmission, both of fluids and solids, but always by the cement substance.

VII. This is a short resumé of a longer dissertation, and though interesting, is of too technical a character to induce us to make a further abstract of it here.

VIII. **Localised Tuberculosis of the Liver** (*Orth*).—Localised tuberculosis of the liver is very rare, and when it does occur it generally takes origin in the bile ducts, the tubercular masses having hence a greenish-yellow colour. But here are two cases of considerable tubercular tumours in the midst of the hepatic substance. One was in a case of general tuberculosis, and the large tubercle was coincident with numerous small disseminated tubercles in the liver and elsewhere. The other case was one of tubercular peritonitis, with not very numerous disseminated tubercles in the liver, but one tumour as large as the fist. It is remarked that organs which are frequently the seat of disseminated tuberculosis are, as a general rule, rarely affected with localised tubercle and vice versa. Thus the liver and spleen are nearly always affected in general tuberculosis, but are rarely the seat of primary tubercular growths. The brain and sexual organs are often the seat of primary tumours, but rarely of disseminated tubercles. It may be added that a similar general relation applies to cancer.

IX. **The Action of Lactate of Soda** (*Meyer*).—The results of this author's observations are not favourable to this agent (and lactic acid) as a substitute for opium, though it may limit its use in many cases, and even in exceptional cases replace it. In some cases it acted as a calming agent on the nervous system, but often irritated the alimentary canal, producing vomiting and diarrhœa. He first tried it subcutaneously, but it produced too much pain. Latterly, he gave it by the mouth, and mostly with a small dose of morphia. A good method is in the form of an effervescing draught, using lactic acid and bicarbonate of soda. Powders of bicarbonate are made up containing 10 to 20 grammes

(154 to 308 grains); one is dissolved in warm water, and lactic acid added till effervescence ceases, or a neutral reaction is obtained. The draught may be flavoured with sugar, or condensed milk, or even extract of meat.

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VOL. LXVI., PART II. FEBRUARY, 1876.

CONTENTS.—XI. Pathological observations, by Dr M. Litten, Breslau. 1. A case of severe gout with amyloid degeneration. 2. Ureteritis cystica polyposa with cystic degeneration of the kidneys (Plate IX., figs. 1, 2). XII. On the structural changes in the kidneys after ligature of their veins, by Drs Buchwald and Litten, Breslau. XIII. On secondary development of cancer in the diaphragm, from Recklinghausen's institute, by A. Rajewsky, St Petersburg (Plate X). XIV. The pathology of enlargement of the spleen in acute diseases, from Recklinghausen's institute, by Dr N. Socoloff, St Petersburg. XV. On the terminations of the nerves in the muscle of the frog, by Dr L. Gerlach, Erlangen (Plate XI). XVI. On the relation of phosphoric acid to nitrogen in the urine, by Dr W. Zuelzer, Berlin. XVII. The sphygmography of the carotid, by Dr E. Mendel, Pankow (Plates XII. and XIV). XVIII. Smaller communications. 1. Changes in the cord after amputation, by Dr A. Genzmer, Halle (Plate IX., figs. 4, 5). 2 Obituary for 1875, by Dr W. Stricker. 3. Report on the swine killed and examined for trichina at Rostock in 1875, by A Petri. 4. An unusually large gall-stone passed per anum, by Dr G. von Dessauer, Valparaiso.

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**XI. Gout and Amyloid Degeneration** (*Litten*).—In the case reported in this paper, there were, in a very intense form, the lesions peculiar to gout, deposition of urates in all the joints, and frequently in their neighbourhood; the cartilages of the larynx and some other parts being also the seat of these depositions. The kidneys were contracted, this being due to interstitial inflammation; but the peculiarity was the co-existence of amyloid degeneration, which was also present, to a slight extent, in the spleen.

**XII. Results of Venous Congestion of Kidney** (*Buchwald and Litten*).—A case occurred to these authors in which with contraction and interstitial inflammation of the kidneys there was congestion. This raised the old question, whether congestion is capable of producing interstitial in-

flammation, or whether this was a simple coincidence. They resorted to experimentation to test the question, and here are the results. Previous authors have only been able to keep animals alive for four days after ligature of the renal veins, but the present authors have succeeded for as long as eight weeks. They died or were killed at various periods within this interval, and so a sketch of the whole process is obtained. Immediately after ligature, congestive phenomena appear, overfilling of the vessels, followed by enlargement, œdema, hæmorrhage, clouding and fatty degeneration of the epithelium. The enlargement increases till the eighth day, and then begins a diminution in size, which goes on gradually to perfect atrophy of the organ. The atrophy is due to fatty degeneration of the epithelium and collapse of the tubules, the Malpighian tufts being well preserved. In all this there is no appearance of interstitial inflammation or new-growth. In some cases there was a pretty free anastomosis established with the veins of the capsule, and in all there was probably some communication between the vasa efferentia and the capsular veins. In this way is explained the persistence of the Malpighian tufts amid the general atrophy. These tufts, however, are much closer set than normal, from the collapse of the secreting tissue. The changes in the tubules occurred mostly in the pyramidal substance, and where the cortex was affected it was chiefly the straight tubules. From these experiments it is concluded that though congestion produces, when long continued, atrophy of the kidney, it does not lead to interstitial inflammation, and the co-existence of these two was not from one producing the other. Probably there was first enlargement of the heart from contraction of the kidney, and the heart becoming fatty, venous congestion developed.

### XIII. Mode of Extension of Cancer (*Rajewsky*).—

These observations are very interesting, as showing how the lymphatic and serous spaces are related to the extension of cancer in the diaphragm, and inferentially also in other similar structures. The author traced the mode of extension in some cases of cylinder-celled epithelioma, and one of colloid cancer—the source of infection in the former case being the liver, and in the latter the stomach. In both cases the first development of the secondary growths occurs in the lymphatic vessels and serous spaces, and the first change is an alteration in the endothelial cells of these. In the case of epithelial cancer, the flat endothelial cells become cubical, and then take on the cylindrical shape of the cells

of the original tumour. Then there is abundant new-formation of cells by division of those altered in this way. In the case of colloid cancer the endothelial cells first become more bulky, and then undergo colloid degeneration, so that they are gradually converted into colloid masses, and the spaces into cavities. There is here no new-formation of cells by division; and there is this other peculiarity, that the colloid degeneration does not confine itself to the cells, but by-and-by involves the connective tissue, and so the boundaries of the serous spaces and lymphatics are lost. There is clearly some infective material which, coming from the original cancer, leads to these changes. The nature of the material is unknown; but it is not true, as some have supposed, that the cells of the secondary cancer are formed from those of the primary one, which have been conveyed to the part. If cells are conveyed, and have to do with the infection, they only induce the endothelial cells to undergo such changes as those mentioned above.

**XIV. The Nature of Acute Enlargement of the Spleen** (*Socoloff*).—This also is a paper, like the former one, conveying the results of observations done under Reckinghausen's directions at Strassburg. The object was to determine whether the existence of minute organisms (micrococci) had anything to do with enlargement of the spleen in such diseases as pyæmia, typhus, &c. Out of forty-one cases he found micrococci in only six; and in these he found them in colonies in the vessels, pulp, walls of the vessels, and fibrous tissue of the spleen. All these were recent cases, and the idea suggested itself that the organisms might have been present at an earlier stage in the others. So he resorted to experiments on animals. He injected putrid material into the peritoneum of animals, and found that he could always be sure of finding micrococci in the earlier periods, but not at all so certainly after four or five days. This adds probability to the idea that in man they are present in the earlier periods, but disappear later on; and this agrees with the facts observed by Lukomsky as to erysipelas, in which the organisms were found when the disease was advancing; and by Obermeier, in the case of relapsing fever, in which the spirilla disappeared during the defervescence.

**XVII. Tracings of the Carotid in the Insane** (*Mendel*).—This paper is illustrated by numerous copies of

the sphygmographic tracings. The normal pulse of the carotid is sharply trieroticus. Atheroma of this artery produces a "pulsus tardus," in which the summit of the curve is broad; and this sometimes exists on one side, along with a unilateral brain lesion. The beginning of such changes produces anacrotism of the pulse. In some mental diseases—especially in general paralysis, and also in the agony before death—there is dilatation of the capillaries and a paretic state of the smaller vessels. This state of the vessels in the encephalon causes the carotid pulse to be dicrotic. But in the majority of insane persons there is congestion and retardation of the cerebral circulation, and the small vessels retain their contractility. This condition—seen especially in melancholis—gives an exaggeration of the trieroticism, sometimes even an increase in the number of the catacrotic elevations.

XVIII. 1. **The Cord after Amputation** (*Genzmer*).—The author examined the cord of a man whose right leg had been amputated in the lower third of the thigh thirty years before. There was distinct smallness of the right half of the lumbar swelling, greatest at the boundary of the lower and middle thirds, becoming slight at the middle, and disappearing in the upper third. It began with the beginning of the lumbar swelling, not extending into the *conus medullaris*. The asymmetry consisted in diminution of the number of the ganglion cells of the anterior cornu, with consequent smallness of this cornu as a whole. The fibres of the anterior roots were also fewer, but the structures which were present did not seem to be altered.

XVIII. 4. **Passing of a very Large Gall-stone** (*Dessauer*).—In this case there was first great pain and enlargement of gall-bladder and liver, followed by relief and the passage of a gall-stone. This stone was so faceted that it had evidently existed along with another, and so the author anticipated a return of the symptoms. This did occur, and on the occurrence of relief, the other gall-stone was passed. Together they form an oval body the size of a small hen's egg, their circumference being  $3\frac{3}{4}$  inches round the short axis and 6 round the long. The case was treated chiefly with opium, and during the intense agonizing colic he got as much as 6.5 grammes (102 grains) in the 24 hours, without signs of poisoning.

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TRANSACTIONS OF  
*The Medico-Chirurgical Society.*

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SESSION 1875-76.

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NINTH MEETING, 3rd March, 1876—Dr Morton, President, in the chair.

Mr John Walker Smith, Mr Wm. L. Muir, both of Glasgow, and Mr D. J. Cunningham, M.B., Hillhead, were admitted members.

I.—BONES REMOVED IN EXCISION.

*The President* showed a number of specimens of bones removed during operations for excision.

II.—TYPHOID FEVER.

*Dr John M'Gown*, Millport, read a paper on typhoid fever, dealing chiefly with the etiology of the disease. The paper was based on a large number of cases occurring in his own practice, extending over several years, in an isolated village, with a winter population of 1300, situated in a small island in the Firth of Clyde.

*Dr Eben. Duncan*, Crosshill, said that the paper was of great merit, and on a subject of the first importance to the communities on the Firth of Clyde. The state of matters described was one very common in these places. In the autumn of last year he had two patients in Millport ill with typhoid fever. One of them was a young lady who ultimately died of the disease. The other came home and recovered. He went to the village, and found that the disease in both cases was traceable to polluted water supply. In the case of the young lady who died, the water was got from what was called the "tea well," which was fed from surface water from the adjoining braes. He noticed also that not far off there was an accumulation of privy dung, and was told that the field behind was manured with that material. In view of this fact it was not at all necessary to conclude that the fever in that case originated *de novo*. What more likely than that the germs of the disease from that manure found their way into the well? His other patient lived in the opposite part of the village. The water in that case was got from the well formerly polluted by the manure heap, which had now been removed, but the field was still manured by the dung of the heap. The opportunity of introducing germs into the water had therefore still been afforded, with the result described. With regard to the cases originating in sewer gas, the house in which these cases had occurred was situated right below the fields manured by the privy dung. In fact, no better example could be given than these Millport epidemics of typhoid fever occurring in an epidemic form, originating in poisoned water supply. There was not one of the cases which was not explicable on that theory. With regard to the connection between sewer gases and typhoid fever, he had considered the question during the prevalence of the Crosshill epidemic. A striking series of cases occurred in a range of houses consisting of eight tenements. In the low flats there were common privies,

which were in a state of horrible filth. In the houses or flats above these were water-closets, from which emanated in many cases bad smells. The water supply was very defective, and was from a cistern in the garret, the overflow pipe of which was untrapped. Here surely were the necessary conditions for the organisation of an outbreak of fever, if it could arise from sewage gas alone. But what were the facts of the case? There were only three families affected in some thirty-eight or forty tenements, and these cases originated from a different cause altogether than sewer gas. Dr Duncan then submitted his evidence (which has been already published), that the first Crosshill epidemic was caused by tainted milk from the Eaglesham dairies. With regard to the cases of alleged poisoning by sewer gas, as detailed by Dr M'Gown, he thought that these were cases in which the system of the people had become deteriorated and rendered susceptible to the poison in its most aggravated character. The locality in which the house was situated was directly under the field which contained the polluted manure, and this would account for the infection of the patients. Numerous cases were on record of a single dungstead containing the poisoned germs originating an outbreak of the disease. The Eaglesham epidemic, from which by means of the milk the Crosshill outbreak had originated, was propagated by a dungstead of the dairyman, which actually drained into an open well. Dr Duncan then called attention to the researches of Birch-Hirschfeld, a German physician, who had fed rabbits on the stools of typhoid patients, and the scabs of typhoid ulcers taken from the body. The rabbits exhibited pyrexia and swelling of the follicles of the ileo-cæcal valve and the vermiform appendix: and in some cases ulceration of the bowels. When the rabbits were fed with non-typhoid putrid effusions, the result was simple diarrhoea, with irritation of the bowel. These experiments appeared to prove that the specific germ of typhoid fever was required to produce the disease. With regard to Millport, he was very doubtful whether its sanitary condition had much improved yet. The whole history of the Millport proceedings showed how necessary it was that the medical officer of such a place should be independent, in regard to his office, of the local authority. He was sure that Dr M'Gown had with him the sympathies of every professional man cognizant of the facts.

Dr Dougal said that the paper was one of great importance, more especially those parts of it which gave a simple narrative of facts. These facts were of the most cogent kind, and to his mind proved that typhoid fever could be generated *de novo*. The case of the late Prince Albert showed this, the poison having come from a drain under his bed-room window. In Dr Murchison's work were given a great many instances of a conclusive kind bearing on the point. While holding that the fever might originate *de novo*, he held, at the same time, that the specific poison of the fever might be carried into wells, and that milk might, in that way, be contaminated. With regard to Dr Duncan's remarks on the Crosshill epidemic, he had lately heard at another society a paper by Dr Kelly, in which that gentleman brought forward a series of facts as striking as those adduced by Dr Duncan, with a view to show that the fever originated *de novo*. With regard to Dr Duncan's milk theory, it was known that during the epidemic there were many insanitary conditions in the district, and these, quite apart from the milk, formed a favourable nidus for the fever. Dr Budd was the great champion of the germ theory, and looked on the sewers, as regarded the propagation of the fever, as simply prolongations of the intestines of the population. The theory, he thought, was untenable. Were it true, it would be hopeless for human effort to cope with a

pestilence that was spread in this way. But, assuming the theory to be true, what became of the germs? Where were now the germs of the relapsing fever they had some eight years ago, of scarlet fever, of diphtheria; or, travelling further back, of the plague and the epidemics of the Middle Ages? Looked at in that light, the theory carried with it its own refutation.

*Dr Bell* said that a series of cases of typhoid fever occurring in a family in Lochranza had struck him as tending to prove that the fever might arise *de novo*. The house was the highest in the village, in which there were no other cases. He ascertained, on beginning to investigate the facts, that the family were supplied with water from an open drain, to which cattle also came to drink. About the spot he found droppings of cattle, and the bottom of the drain was also covered with excreta of cattle. In reference to sewage gas as producer of typhoid fever, he had carefully investigated his cases, and there was not one of them which he could attribute to the inhalation of gas. Such an insanitary condition would, no doubt, predispose to the disease, but the latter appeared always to be caused by taking into stomach or intestines a fluid containing decomposing matter.

*Mr John Reid* said that in so far as the paper contained a statement of facts, it was valuable. There were, however, many facts which were not general in their character; and care should be taken that the conclusions from mere isolated facts should not over-ride those from general facts. With regard to the various ways in which it was alleged to originate, some of the theories were destructive of each other. If it arose from water or milk, it was hard to see how it could also arise from inhaling sewer gas. That contaminated water might give rise to diarrhoea he could understand; but how it could produce a specific fever, called "typhoid," he could not see. In a village of 1200 inhabitants, in which he practised for 12½ years, there was an epidemic of typhoid fever every three or four years. It ran its course, and gradually subsided, to appear again years afterwards. He knew of nothing to account for it of the kind adduced in modern days. The water had been used for years without any bad effect, so that no one thought of blaming the water. The subject was one of much difficulty, and they had got much to learn in regard to it. *Mr Reid* then gave examples of relatives living many miles apart being simultaneously seized with typhoid fever, without any communication with each other, or anything in their surroundings to suggest a common cause. He also adduced examples of typhoid and scarlet fevers co-existing in the same family at the same time. *Mr Reid* suggested that more attention should be given to the pathology of the fever, to the state of the mucous membrane, and of Peyer's glands, which were often affected. How, he might ask, could tainted water give rise to a specific condition of the glands? How, again, on the germ theory, could the typhoid germs resist the action of the gastric juice, when introduced into the alimentary tract? The theory was beset with insuperable difficulties on every side. In cases of seizure by typhoid fever they would generally find that there was something in the antecedent condition of the patient, such as exhaustion after exertion, which had a much closer connection with the production of the disease than the supposed introduction of germs.

*Dr Gairdner* said that of the two kinds of facts, general and isolated, of *Mr Reid's* classification, the latter were the really valuable, if those adduced by *Dr M'Gown* might be taken as representative of them, and if the remarks of *Mr Reid* contained fair specimens of the former. With regard to the two sides of the question of the origin of typhoid fever, as stated by *Dr M'Gown* and *Dr Duncan*, nothing could be better in the way

of lucid statement of principles, buttressed by series of cogent facts. To him the chief interest of the paper lay in the impression it left in his mind of the importance of standing by individual members of the profession in circumstances similar to that in which Dr M'Gown had been placed. Dr M'Gown made no pretension to be a poet, but his admirable paper had reminded him (Dr G.) of a well known passage in the poet Shelley, in which he speaks of men who

“ Are cradled into poetry by wrong ;  
They learn in suffering what they teach in song.”

The position of Medical Officer of Health in places like Millport, in which the whole disposition of the place was to suppress everything which was supposed to involve the reputation of the village, and consequently its prosperity as far as house-letting was concerned, was one of great delicacy, and required for the performance of its duties an amount of moral courage which ought to meet its reward in the warm sympathy of the profession.

Dr Perry said that, in regard to the question under discussion, whether typhoid fever arose *de novo* or from specific germs, his own opinion was that it could originate in both ways. In the majority of cases it probably arose from existing germs which were fertilised only in constitutions previously prepared for them. This preparation consisted in a process of debilitation, which rendered the person liable to attack. That in many cases the origin must be *de novo* in a variety of ways, by contamination of water, decomposition of animal matter, the inhalation of sewer gases, &c. He had himself traced a series of fifty or sixty cases occurring in Garnkirk from the contamination of the water supply with sewage matter which found access into the pipes. Tracing the matter further back he could find only a somewhat suspicious case of a man suffering from diarrhoea. It was impossible, however, to say that this case had any connection with the outbreak.

Dr Fergus said that great benefit would result from drawing attention to the origination of disease from the pollution of wells. Not long ago there had been an outbreak of typhoid fever in a village on the Clyde. He had got the wells tested, and found that of twenty-eight of them only one was free from organic matter, and that one was at the extreme limit of the village. He found also that the intensity of organic pollution was a measure of the extent of the outbreak in the different districts. In regard to the theoretical question, whether the disease could originate *de novo*, or only from existing germs, it did not affect the practical aspects of the case. In both views the origin of the evil was excremental pollution. A great deal might be said in favour of the germ theory of the propagation of the disease. A community lived under insanitary conditions, drinking impure water, inhaling sewer gases, and it may be for a long period there was no outbreak of fever. Suddenly there was an onset of the disease, with the sanitary conditions apparently unaltered. It was only natural to argue that something had occurred in addition to the ordinary sanitary surroundings of the people; and if it were possible to show that typhoid excreta had been introduced as another element, it afforded a strong case in favour of the germ theory. They all believed in the specific poison of smallpox. That was a tangible thing; but the germs of typhoid fever could not, at least at the present state of scientific inquiry, be so easily isolated, and hence the difficulty in believing in them. Another difficulty was that of several people exposed to the same influences, some were seized, others escaped. But this was the case with regard to all such dis-

eases, and was explicable on the principle of a deterioration of constitution in the cases of those attacked. There was less difficulty in believing in the long-continued latent vitality of these germs, as this was in accordance with what was known of other low organisms. He (Dr Fergus) did not commit himself to the germ theory; and, as he had already stated, it was enough for practical purposes to know that excrementous pollution was the source of the evil. They had now got pure water in Glasgow, but they had still impure air, which gave rise to much of the typhoid fever they had among them. The Crosshill epidemic originated in polluted milk, but it was propagated, there could be little doubt, by the products of decomposing matter.

Dr Scott Orr agreed with Dr Perry, that typhoid fever could originate both *de novo*, and as the result of germ infection. One thing, however, was mysterious to him, viz., why typhoid fever had supplanted typhus fever as the ordinary fever in this country? No cause which had been adduced in explanation of that phenomenon was to his mind satisfactory. The drainage could not account for it, as that was better than it was 25 years ago.

The President thought the paper an admirable one, and agreed in its conclusions. Dr McGown had no doubt taken into consideration, as a possible element in the case, the summer over-crowding, which was characteristic of the Clyde watering places. He thought that the experiments of the German physician, alluded to by Dr Duncan, in feeding rabbits with typhoid excreta, proved nothing. In regard to the germ theory, he had a great want of faith in the existence of *malignant* germs. In regard to Dr Orr's difficulty, there could be no doubt that the prevalent fevers changed in time. The plague had disappeared, or only lingered in malignant typhus. Ship fever and gaol fever, as well as the plague and typhus, had long been associated with the prevalence of famine and filth. He did not think that typhoid fever was entitled to be called a prevalent fever in Glasgow.

Dr McGown thanked the Society for the cordial way in which they had received his paper. He could assure Dr Duncan that Millport was now sanitarily much better than formerly. He was quite aware, and had seen some of the summer over-crowding, which, however, did not cause the fever. With regard to the two deaths in one house, of which he had spoken, he could not conceive of a clearer case of poisoning by sewer gas.

TENTH MEETING, 7th April, 1876—Dr Morton, President, in the chair.

I.—EXCISION OF THE ELBOW JOINT.

Dr H. C. Cameron showed two cases of excision of the elbow. He said these were cases of severe strumous disease, with numerous sinuses, and in one of the cases the sinuses were not yet entirely closed. In the first case, that of a young girl, they would observe that the movements of pronation and supination were almost perfect. The only difference from the normal condition was that in these movements a larger arc was described. In regard to the operation, the great thing to avoid was taking away too little bone. The second case—that of a young boy—was one of severe disease of the elbow joint, and the sinuses were scarcely yet healed. For the last few weeks he had been working at "moulding," and one

sinus was discharging a little clear fluid. In both cases there was much atrophy of the muscles of the arm; but this was gradually wearing away, the arms becoming visibly thicker. With regard to the actions of the joint, these had been attained by a long course of systematic training. After their dismissal from the hospital, the patients came back regularly for the purpose of being daily drilled into the proper movements.

#### II.—PLASTIC OPERATION ON THE EYE-LID.

*Dr Wolfe* exhibited two cases of plastic operation on the eye-lid by a new operation. In the one case the man had burned his eye-lid completely with gas, with the result of producing eversion, and leaving the pupil unprotected. In the other case the face, eyes, and eye-lid had been burned with gunpowder, the right lower eye-lid being completely everted, and its integument wholly destroyed. The former case had been operated on some eight days before being exhibited, and promised a successful result. The other case had been operated on eight months ago, and would also have been completely successful, had not one of the parts of the flaps, taken from the forearm, been applied experimentally to the wound with the areolar tissue unremoved. From the other two parts of the flap the areolar tissue was carefully removed, with the result that, when applied, they healed by agglutination, without a bad symptom. The part applied without previous preparation suppurated, and only a portion of it eventually remained. In the case recently operated on the flaps had been carefully prepared by the removal of the areolar tissue.\*

#### III.—OXIDE OF ZINC IN INFANTILE DIARRHŒA.

*Mr J. Crawford Renton* read "A short note on the treatment of Infantile Diarrhœa by oxide of zinc."

*Dr Hugh Thomson* said that in enumerating the remedies which had been tried in infantile diarrhœa, *Dr Renton* had omitted the sub-nitrate of bismuth, which, especially when joined to a little Dover's powder, he had found to be a good local sedative.

*Dr Scanlan* had lately made a trial of pepsine in infantile diarrhœa, and with good results.

*Dr Barr* said that he had found oxide of zinc of use in checking tubercular diarrhœa in the adult, and markedly diminishing the sweating. Infantile diarrhœa was generally connected with improper feeding and bad hygienic conditions. Still there were cases in which the removal of these conditions was insufficient to check the diarrhœa, and he had no doubt that oxide of zinc would be of much service in doing so.

*Dr Thomas* suggested that oxide of zinc, from its great insolubility, probably acted mechanically in the intestines. He had great faith in Dover's powder in the diarrhœa of infants.

*Dr John W. Weir* said that accompanying diarrhœa in the summer months there was a general relaxation of the tissues, and he could under-

\*An account of the mode of operation by *Dr Wolfe*, will be found in the *British Medical Journal*, September 18th, 1875.

stand that oxide of zinc would be a beneficial remedy. In cases of tubercular diarrhoea he thought it would be less effective than some other remedies.

*Dr Renton* said that Dover's powder was no doubt a valuable remedy in the earlier stages of the affection, but when the stools became watery, and almost constant, he had found the oxide of zinc preferable.

*The President* said that chalk had not been mentioned among the remedies. His experience in Glasgow, however, was that if they prescribed a chalk mixture they very seldom got it.

#### IV.—BEHAVIOUR OF CARBOLIZED CATGUT IN THE TISSUES.

*Mr Wm. Jas. Fleming* read a paper "On the behaviour of Carbolized Catgut inserted among the living tissues," which will be found, in abstract, in the *Lancet* for 27th May.

*The President* said that Mr Fleming's experiments were very interesting. He well remembered a similar discussion in the Medical Societies many years ago, in regard to the behaviour of ordinary catgut used as a ligature.

*Dr Cameron* said that the results of Mr Fleming's experiments, which had evidently been conducted with great care and ingenuity, were substantially the same as those arrived at by Mr Lister some time ago. In the early days of antiseptic treatment, catgut was sometimes employed as a suture, in the hope that it would be less irritating than a metallic suture, and unaccompanied by suppuration as in the case of silk. On examining it after a while, it was found to get extremely thin where it dipped into the tissues, and at the point where it emerged from the skin it recovered its original thickness. This indicated its absorption by the tissues. There could be no doubt that its disappearance depended on the preparation of the catgut. Dr Morton had made reference to old discussions on catgut many years ago. Catgut was, indeed, used long ago in surgery, Sir Philip Crampton having in one case tied the external iliac in man, unsuccessfully, and the procedure was at the time severely criticised. It must be remembered, however, that catgut was entirely altered in its chemical constitution, by being carbolized. Catgut, they were aware, was the small intestine of the sheep twisted. When put into water or serum it swelled and softened and became useless. The catgut of anglers was the silk worm's gut, which did not soften in water.

*Dr Foulis*, while thinking the paper of much value, was inclined to take exception to the expressions which Mr Fleming had used as explanatory of the change effected. He had stated that the catgut was "converted" into tissue. Now if he believed that the cells found in the infiltrated catgut were derived from the catgut, this expression was quite proper. But if these cells were derived from the cicatricial tissue, the process was not one that could be fairly described as the conversion of catgut into tissue, but as the conversion of white blood cells into tissue. Take the case of a hard foreign body, such as a bullet, embedded in tissue. There was some pus formed round the bullet, and then a layer of granulation tissue, which afterwards became converted into fibre. This was not the conversion of the bullet into tissue. If the bullet could be softened in the body and disappear, the analogy to the case of catgut would be complete.

*Dr Joseph Coats* coincided with Dr Foulis in taking exception to the description of what occurred. There was no conversion of the catgut into

tissue, but the conversion of inflammatory cells into organised tissue. A thrombus inside a vessel was converted into tissue, the process of organization originating in the cells of the clot. But in the present instance the case was different. He would also take exception to the comparison of the process to that of ossification of bone. The osteoblasts were derived, not from the white corpuscles, but from the cartilage cells. In order to make out any analogy between the process and that which occurred with reference to the catgut, it would be necessary to assume that the granulating cells were in the catgut.

*The President*, in reference to Dr Cameron's remarks, said that he did not think that catgut prepared by any antiseptic would have its chemical constitution so altered as to enable it to resist change in the tissues. A wet rope became tighter than a dry one; and for the same reason catgut, when wet, swelled, and in place of the ligature becoming loose, it became much tighter. At a subsequent period it was equally certain that the opposite process would take place.

*Mr Fleming*, in reply, said that he quite coincided with the remarks of Dr Foulis and Dr Coats as to the correct verbal statement of what actually occurred; and he thought that he had made it clear that such was his view of the matter. It was not the catgut that was converted into tissue, but as he had said, something that took the place of the catgut. There was formed a cast of the catgut in tissue. He took leave, however, with deference to Dr Coats' great histological acquirements, to doubt whether in the process of ossification the osteoblasts were formed from cartilage cells. His own impression was that they were formed from white blood corpuscles. With reference to Dr Cameron's remarks, he had to express his great obligation to Mr Lister in regard to his investigation into the subject he had that evening brought before them. His (Mr Fleming's) injection of the vessels was, however, a new contribution of some importance to the inquiry. He thanked the Society for the way in which his paper had been received.

ELEVENTH MEETING, 21st April, 1876—Dr Morton, President, in the chair.

#### I.—SKIN GRAFTING.

*The President* showed a patient, to whose leg several grafts had been successfully applied.

#### II.—ARSENIC IN BONE MANURE MANUFACTURE.

*Dr James Adams* read "A contribution to sanitary science:—On the discovery of Arsenic in the Vapours of Bone Manure Manufacture."

*Dr Macleod* said that Dr Adams' report prepared for the pursuer in the law case was one of the most elaborate and exhaustive reports which he had ever heard. Personally he had not seen much of the bad effects of bone manure manufacture on the work-people. On one occasion he had seen one case—that of an apparently strong woman—who entered work at Townsend's, and within a week she was sent to take off a lid from a vessel in which the materials were in course of preparation, when she was seized with sickness and vomiting, and in two or three days she died—he could not say from poison—but nothing was seen in the case to account for the death. At the same time he was bound to admit that the workers generally appeared to be strong and healthy women, and on inquiry he was told that though for the first few days they might have sickness and vomiting, no permanent injurious effect followed.



*Mr John Reid* said that he thought it very unlikely that the fumes of this manufactory were the cause of the man's death. At all events this was not proved, and the want of a *post mortem* examination deprived the supposition of any ground-work of fact. He had many years ago been well acquainted with the village of Thornton in Fifeshire, in which there was a bone manure manufactory of large extent, and he could testify that, as a medical man, he had never seen or ever heard of any deleterious effects of the work upon the workers. It was intended at first as a vitriol work, but the manager found that it would be profitable to add the making of bone manure. Of any offensive effluvia there was no complaint. He had frequently been in Townsend's work, and he noticed that the women were stout and healthy looking. Had the work about which Dr Adams reported given forth effluvia of such direful potency as was represented, the health of the workers could not escape being greatly affected. The analysis of a sample of air from the vicinity of the work would have gone far to settle the question. Such strictures as Dr Adams had passed, if generally believed, would have a very serious effect on that and similar branches of industry.

*Mr George MacEwan* said that he had great doubts of the death of the gentleman mentioned by Dr Adams being due to the cause alleged. He was very well acquainted with the working of a very large bone dust manufactory in Ayr. From personal knowledge he could testify the only disagreeable smell arose from the phosphoric acid. That work had in it the healthiest men and women in the county.

After a few words from *Mr M'Carroll* in regard to the deleterious effects of chemical works,

*The President* suggested that some of the characteristic effects of arsenic on the human system when taken in smaller than poisonous doses, such as the brightening of the complexion of those subjected to its influence, might possibly have been apparent had attention been directed to them.

*Dr Adams*, in reply, said that the question of the cause of death in the case to which he had drawn attention was referred to merely as an episode. The case was that of an aged man who had been, up to the period of his fatal seizure, in remarkably good health. The symptoms of his illness, as described by the medical man who attended him, were violent pain in the stomach, with incessant vomiting. This weakened him much, and he died in the effort to sit up in a chair. The vomiting came on as a sequel to the inhalation of the fumes, and the man himself was fully persuaded that his illness was brought on by that cause. But putting aside that matter, which had been introduced more incidentally than as a part of his paper, he had shown that if it were granted that arsenic is a poison, the atmosphere in the neighbourhood of a bone manure work must necessarily be loaded with the fumes of that poison—with vapours of a most irritating nature. Arsenic in a volatile form had, it was well known, been the cause of poisoning many individuals. (Dr Adams gave illustrations of deaths of chemists from the vapours of arsenic in the laboratory.) If, then, arsenic could poison in the form of vapour, it must be poisonous when given off in the manufacture of manure from bones. He believed that numerous cases of death had occurred from that source, and these had been attributed to other causes. With regard to the alleged healthiness of those engaged in the occupation, the question was a difficult one to determine. No doubt the women were often stout, but the occupation was one which could be followed only by a selected class. The casual

questioning of the workers in the factory was not the way to arrive at the truth. They must be followed home: the length of time at which they continue at the work must be noted: the employers must give their experience. Such an inquiry he had conducted, and although he had not yet carried it very far, he had found within a few days four cases of death in which there were grounds for attributing them to this cause. In fact, to deny that deleterious effects must follow such an occupation, would simply be to deny that arsenic in the form of vapour was a poison. His paper, it would be observed, did not pretend to give a record of his entire researches on the subject. He intended to follow it up by another paper, and to continue his investigations on the subject.

TWELFTH MEETING, 5th May, 1876—Dr Morton, President, in the chair.

*Dr Foulis* exhibited—

I.—A SCAPULA FRACTURED IN THREE PLACES BY A BLOW.

II.—AN UMBILICAL OMENTAL HERNIA OF LONG STANDING.

III.—A MALFORMATION OF RIB WITH AN OVAL OPENING EXISTING AT THE ANTERIOR PART, ABOUT THE SIZE OF TWO INCHES BY ONE, FILLED WITH A DIAPHRAGM OF MUSCULAR TISSUE, WITH ITS FIBRES APPARENTLY IN THE SAME DIRECTION AS THE FIBRES OF THE INTERCOSTAL MUSCLES.

Dr Foulis pointed out as a physiological curiosity that the disuse of the muscle—for in its position as described it could have performed no function whatever—did not appear to have affected the fibres, which were quite healthy and normal.

THIRTEENTH MEETING, 19th May, 1876—Dr Morton, President, in the chair.

I.—COCA.

*Dr Dougall* exhibited the coca leaf, and also an infusion of the leaf, and made some remarks on the properties of coca, particularly in regard to its power of allaying or preventing hunger, and of dilating the pupil. He also referred to the recent researches of Sir Robert Christison on the properties of the substance.

*Dr Joseph Coats* read

“A STUDY OF TWO ILLUSTRATIVE CASES OF EPILEPSY.”

*Dr Barr* said that in regard to the second case the patient was for some time under his care. When walking along the street he would suddenly be seized with an indescribable feeling, which was followed by unconsciousness, and when he recovered he generally found himself at a considerable distance from the spot at which he lost consciousness. At these times his lips became deadly pale. On some occasions he stood perfectly still, as if in a cataleptic condition. The fit on one occasion seized him while standing on a chair with a loaf of bread in his hand. On his recovering he was still on the chair, with his fingers buried in the loaf. His wife remarked on his excessive excitability of temper. Latterly, tubercular deposits in the left lung manifested themselves.

*Dr Alexander Robertson* said that Dr Coats had very clearly described the ideas at present entertained in regard to the pathology of epilepsy.

Sometimes it began in a motor, sometimes in a sensory, and at other times in an intellectual centre. He had seen typical cases of these three varieties, and, in fact, at present had in his wards representatives of each of them. In one patient the first symptom was the appearance of a ball of fire, indicating the implication of the centre for visual impressions. This was followed by convulsions, and the intellectual centres were subsequently involved. In another case the attack was ushered in by the hearing of beautiful music, and this was rapidly followed by disturbance of the motor centres. In other cases the hand, particularly the thumb, was first attacked, and the convulsive movements might either be confined to one side or extend to both sides. In another case a man had got up to make water when he was seized with an attack, let fall the chamberpot, and for sometime behaved violently. When he (Dr Robertson) saw him he had recovered, and on questioning the patient, the latter was greatly astonished to hear that he had been guilty of violent behaviour. He was inclined to think that Dr Coats' second case, in which the patient walked automatically, that the aura was substitutionary—that it was, in fact, a case of *petit mal*. He had seen many cases of the kind. Just the other day he had a patient who was seized with convulsions in the Asylum. He spoke to him, and the man answered sensibly, but shortly afterwards he thrust his fist through a pane of glass. He brought this case before his clinical class, and on questioning the man, he had no recollection of the incident. Another put his bonnet into the fire, quite unconscious of what he was doing. With regard to the medico-legal aspects of these cases, he quite agreed with Dr Coats as to the importance of this view. A patient seized with a fit, say with a knife in his hand, might, not knowing anything of what he was doing, perform some act involving loss of life. Lawyers were now aware of this fact, if he might judge from a case in which he was lately engaged. In that case the advocate for the defence endeavoured to show, as explanatory of the prisoner's conduct, that he was subject to epileptic seizures.

*Dr Charteris* said that he doubted whether the theoretical views in Dr Coats' paper were of any practical value. The important point for a physician to know was how to treat these cases. The current view in Germany he believed was, that the seat of disturbance was the medulla oblongata, and the actual cautery had, on this supposition, been applied as a remedial measure to the nape of the neck. Bromide of potassium in large doses was the remedy on which he chiefly relied. The late Dr Begbie had instanced a case of recovery after fifteen months' treatment with this drug. The patient had been ill for many years.

*Dr Barr* said that in regard to treatment, he had a case some years ago, in which bromide of potassium in large doses was tried for some months without effect. The patient then became convinced that blood-letting would do him good. He was a full-blooded man, and he (Dr Barr) thought the loss of a little blood would at all events do him little harm. For the first and last time in his practice he performed venesection, but without avail. Ultimately cupping behind the neck was resorted to, and after that treatment the man never had another attack. He married shortly afterwards, and now had a healthy family.

*Dr Renton* inquired what was a large dose of bromide of potassium? He used to think that 15 grains three times a day for a child ten years of age a good dose. He had, however, a case of that kind, in which he had tried very much larger doses. Before coming to him, the girl had got 2 or 3 grains of the drug thrice daily. After a large abscess on the head, got from falling, had healed up he began with 20 grains three times a day, which

was eventually increased to the same dose five times a day, and with the best effect. His experience in that case had shown him that the dose could be made very large without any serious mischief being produced.

*Dr Dougall* said that he had a case in which, from the frequency of the attack, the patient ran great risk of serious injury. He began with half-dram doses thrice a day, which were increased to half-ounce doses, administered as often. The result was to diminish the number of fits from three or four daily to one every three weeks. He had also tried the chloride of potassium, and its effect appeared to be as potent as the bromide: but it was not so well relished by the patients.

*Dr Scanlan* said that a favourite treatment in days prior to the bromide of potassium was a mixture of four sulphates, those of iron, alum, zinc, and quinine, in equal quantities. The remedy had a very good effect.

*Dr Hugh Thomson* regretted that the discussion had somewhat gone beyond the limits of the paper, which had reference simply to the pathology of the disease, not the treatment. In the matter of treatment it was of prime importance to know the causes of the disease. These were very various. It might be connected with disease of the kidney, with irritation of the intestinal canal, &c., and the proper treatment would be indicated by discovering the origin of the disease. In cases of extreme sensibility bromide of potassium would be the proper treatment, though in other cases it would be inapplicable.

*Dr Knox* said that the study of epilepsy, as placed before them in *Dr Coats'* illustrative cases, was exceedingly interesting, and he could not agree with *Dr Charteris*, that such studies had no bearing on the practical work of the physician. Nor could he coincide in the belief which *Dr Charteris* mentioned as general, that epilepsy was necessarily connected with the medulla oblongata. The first of *Dr Coats'* cases was interesting in several ways, and notably in showing that the attacks had obviously no relation in their origin to the medulla oblongata. With regard to that case, *Dr Coats* had laid it down that the primary seat of irritation was in the brain. Now, in reflex acts connected with the trunk of the body and the limbs, the primary seat of reflexion was in the spinal cord. It was clear from experiments that the seat of reflexion was in the cervical enlargement of the spinal cord. *Dr Coats* told them that there was no insensibility at first, or any other symptoms referable to the brain. It was a gradual irritation of the automatic centres, which in the end resulted in central cerebral disturbance. Now, physiology taught them that transference took place not only from motor to sensor centres, but from one sensory centre to another. It was probable, therefore, that the centre disturbed was the one to which he referred, and that the medulla oblongata had nothing to do with it. He knew a case, years ago, in which the exciting cause was the contact of cold water with the forehead and crown of the head when the patient entered the bath in the morning. Here the sensory nerves of the forehead and crown of the head (which did not pass through the medulla oblongata) originated the disturbance.

*The President* said that, in regard to the first case, it originated in an injury to the index finger. Ordinarily, such an injury would result, not in epilepsy, but in tetanus; and it might give rise to an interesting train of reflection, why in this particular case it was epilepsy, and not tetanus, that was developed. He agreed with *Dr Robertson* that the second case was probably one of *petit mal*. When living, many years ago, in the country with a friend, he had seen a case somewhat similar, in which a young lady

was the sufferer. While walking or conversing, she would be seized with a fit. She did not fall, but stood still; the fit was preceded by great paleness, which was followed, on the fit passing off, by a flushing. With regard to the bromide of potassium, he had frequently succeeded in effecting a cure by doubling or trebling the usual dose. He never gave half-ounce doses; but he had given two drams thrice daily, and he would not hesitate to give three drams.

*Dr Coats*, in reply, said that *Dr Robertson* had misunderstood what he had said about the aura. What he meant was, not that the aura was something distinct from the fit, but that it was the fit. *Petit mal* was a misleading name. Epilepsy generally consisted of violent convulsions. If the commotion in the centres was not very violent, but were essentially of the same character, except in the matter of degree, it seemed an absurdity to call this by a different name. In his case the commotion was considerable, lasting on one occasion for fifteen minutes. He thought *Dr Charteris'* remarks ill-considered. All rational treatment must surely be based on pathology. Any advancement in pathology was likely to benefit treatment. Therapeutics, considered altogether apart from pathology, had no scientific basis. In regard to epilepsy, an investigation into its various forms would aid in indicating the treatment proper to each. Bromide of potassium would not be proper in all cases. Epilepsy might arise from tumours in the brain or the skull, from syphilitic tumours, &c., and the treatment would be adopted accordingly. He had found bromide of potassium very useful. With regard to the dose, 40 or 50 grains three times a day he had tried with success. He somewhat questioned the propriety of doses of two drams three times daily, if continued for months. With regard to *Dr Knox's* remarks on reflex action, he differed from him on the point. Reflex action, or what was tantamount to reflex action, could be set up in centres high above the spinal cord. The point of reflex action might, indeed, be the centre of the brain. *Dr Knox's* notion that the non-occurrence of insensibility negatived the idea of the brain being implicated was untenable. *Dr Morton's* remark in regard to the development of epilepsy in preference to tetanus in the first case was very suggestive, and had not occurred to him.

### III.—DISINFECTANTS.

*Dr Dougall* read "Some Remarks on Disinfection."

*Dr Lothian* said that in cases of diphtheria he used chlorine water, which he saw strongly recommended in an article in the *Edinburgh Journal* some years ago, and he found it of great advantage. He had not used carbolic acid in surgical cases, being quite satisfied with the results of the old-fashioned water dressing. During the present year he had four operations which did well with that dressing.

*Dr Joseph Coats* said that *Dr Dougall's* experimental results were very valuable. He had perhaps done some injustice to *Mr Lister* in saying that that eminent surgeon was in the habit of praising carbolic acid as the best antiseptic. What *Mr Lister*, in effect, stated was that carbolic acid was the most convenient antiseptic for his purpose. No one was, in fact, better aware than *Mr Lister* of some of the disadvantages of carbolic acid. In regard to *Dr Dougall's* experiments with vaccine lymph, he observed that he had used the word "bacteria" as synonymous with "microzymes." That there were no bacteria in vaccine lymph *Dr Dougall* was correct in asserting; but there were microzymes present in the lymph, as any one could see with a powerful microscope. They were organic particles, having

certain infective powers, and Burdon-Sanderson had given them the names of microzymes.

*Dr Cameron* said that much credit was due to *Dr Dougall* for his researches. It was somewhat unfortunate, in regard to carbolic acid in surgery, that it had come to be used in a sort of senseless fashion. It was a pity that there should be any confusion between the antiseptic and the disinfectant qualities of carbolic acid. It was sufficient for him that he was able by its means to keep a clot of blood unaltered; that he could by it open an abscess without setting up constitutional disturbance or toxic fever. What effect it might have on typhoid stools was another question, with which its application in surgery had nothing to do. He entirely sympathised with *Dr Lothian*, that it was better not to use it at all than to employ it in a half-hearted and perfunctory way. *Dr Lothian's* operations which succeeded under water dressing were of a nature in which, under any treatment, recovery was the rule. They were, therefore, not crucial tests of the worth of the treatment used. Let *Dr Lothian* test the water dressing in cases of compound fracture, or psoas abscesses connected with diseased vertebrae, or primary amputations after injury. It was in hospital cases that the benefit of the antiseptic treatment was best seen. If this system were really an improvement in surgical treatment, it would go on and live; while, if it were not, it would as certainly die.

*Dr Hugh Thomson* said that if *Dr Dougall's* experiments with vaccine lymph were made on a vaccinated person, the results would obviously be of no value; while, if they were made on unvaccinated children, he was somewhat doubtful of the *morale* of the procedure. Vaccination was an operation which could only be well performed once in a lifetime. It was therefore a very serious thing to embark in experiments on children, which might eventuate in an imperfect vaccination, seeing that such a result was really irreparable. Even in regard to the experiments viewed as tests of the validity of vaccine virus under various conditions, the results were apt to be falsified by the very different degrees of susceptibility of different children to the influence of the virus.

*Dr Dougall*, in reply, said that, as an old student of *Mr Lister*, he had a very high respect for him as a surgeon and a teacher, and he accepted the germ theory as true until he began to investigate the subject for himself. He was perfectly sure that he had heard *Mr Lister* repeatedly speak of carbolic acid as a most powerful antiseptic. *Mr Lister's* treatment he considered to have very great value; it was his theory that was wrong. With regard to the names "bacteria" and "microzymes," the latter was the generic term, and included bacteria, vibriones, and their allies. He was not aware that the term had been applied to the little particles found in vaccine lymph. It was on unvaccinated persons that his experiments on vaccine virus had been made; and it was also on such persons that the experiments related in the late Blue Book issued by the Medical Department of the Privy Council were made.

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## Medical Intelligence, &c.

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### GLASGOW MATERNITY HOSPITAL.

The Annual Report of this institution for the year 1875 contains the following particulars as to the patients treated, and the infantile and maternal mortality:—

Number of women confined in hospital, .....	304
Do. do. at their own homes, .....	927

Total,..... 1231

There were five cases of twins occurring in hospital, and twenty cases in the out-door practice. The infantile mortality was 35 in hospital, 29 of those born at the full term, and 6 among premature births. Among the out-cases the infantile deaths numbered 62 at the full term, and 11 of those born prematurely. There were 8 maternal deaths in hospital, and 8 among the out-door cases, the former being distributed as follows:—Puerperal septicaemia, 2; metritis, 3; nervous shock and exhaustion, 1; convulsions, 2. Drs Wilson and Tannahill report that scarlatina appeared in the hospital towards the end of August, and again early in September; on both of which occasions the wards were closed for a week. They add, "The patients so affected were without delay removed to the fever hospital; and there is every reason to believe that the disease was not contracted in the hospital, but that the patients must have been labouring under the disease when admitted, although the special character of the affection did not manifest itself for several days subsequently. It is gratifying to think that the hospital has hitherto enjoyed remarkable immunity from the importation of infectious disease."

The medical staff has been enlarged by the appointment of two assistant physicians; and as this necessitated some alterations in the bye-laws, these have undergone a thorough revision.

Dr J. G. Wilson having completed his twenty-one years' term of office, has been appointed consulting physician, Dr Hugh Miller taking his place as physician-accoucheur. Drs Samuel Sloan and J. Wallace Anderson have been appointed assistant-physicians, and Dr R. S. Wallace one of the out-door physicians.

Dr Hugh Miller delivered an introductory lecture to his Course of Clinical Obstetrics on May 5th, 1876. After some remarks on his predecessors in the office, Dr Miller gave the following brief resumé of the history of the Glasgow Maternity Hospital:—

"Even in our day, some people doubt the propriety of having such useful institutions as lying-in hospitals at all; and in the profession their desirableness is still an open question. When, therefore, the first Mater-

nity Hospital was opened in this city, about the year 1792, we need not be greatly surprised to learn that it was interdicted by the magistrates, and shut up. A better fate awaited the next effort. At a public meeting in 1834, an hospital was declared to be desirable 'for affording the necessary accommodation and assistance to indigent married females, under circumstances which are at all times attended with suffering, and frequently with danger.' The premises secured were the second flat and attics of the old Grammar School, in the now extinct 'Grammar School Wynd.' The house was fitted up with the necessary furniture and beds as speedily as possible;—eighteen beds were provided, and this was considered ample accommodation. The first report of the hospital, amongst other things, states that the situation 'is rather confined—it is, however, sufficiently healthy;' but as an evidence of its primitive condition, and in marked contrast to the comforts of our present hospitals, I find two years later—that is in 1836—'the Committee were unanimously of opinion that it was necessary that a water-closet should be immediately fitted up in the premises.' I regret to say that the hospital did not receive in those days such encouragement and sympathy from the wealthy as it deserved; when but four years in existence the funds were so low that the directors agreed personally to canvass for subscriptions; and, with a view to economy, they actually resolved at the annual public meeting in 1840 that the expenses of maintaining the inmates be fixed at the following rates:—Matron, 1s; servant, 9d; and patient, 6d each per day. The house rent, too, after driving a hard bargain, was reduced £10. Not content with this rigid economy, they agreed in the following year to remove to even cheaper premises in St Andrew's Square. The establishment was reduced to eight beds, the other ten being offered for sale to the Royal Infirmary; and 2d per day extra was allowed the matron for the maintenance of each patient. These facts are sufficient evidence of the rigid economy, of the hampered comforts of the inmates, and of the frequent difficulties under which the medical officers must have laboured. It was not until twelve years after the hospital had been opened that the public gave pecuniary encouragement so liberally that the directors could consider the necessities of the hospital, so far as suitable accommodation and comfort were concerned. The twelfth yearly report mentions that the directors found the house 'to be inconveniently small, there being only one moderately-sized room for the accommodation of patients of all states and stages.' In these circumstances it was deemed proper to look out for another house. One of larger dimensions, and in every respect more suitable, was found empty in the adjoining tenement. It contained four good rooms and kitchen in one floor, and several good attic rooms. When two years in this building the neighbouring tenants complained to the factor, and notice to quit was given. Ultimately the hospital was allowed to remain, by the directors agreeing to pay an additional rent; and this arrangement existed until 1859, when the present buildings were purchased and fitted up for the purposes of the hospital.

“Thus far I have glanced at the early struggles of this deserving institution, because I may be speaking to some one who, in the future, will be called on to assist in originating and carrying on a similar charity elsewhere, and who may be cheered by the remembrance of these days of adversity. Sufficient also has been said for the purpose of indicating how in the past, in consistence with the means provided, the directors have earnestly endeavoured to maintain the institution in the interests of the deserving poor, and for the efficient teaching of medical students. Now that seventeen years have elapsed since this building was acquired, and as the requirements of the medical schools have exceeded the calculations



then made, we doubt not the directors of to-day will soon seek to provide such accommodation as will maintain the standard of efficiency—both in respect to the wants of the city, and to the requirements of her students. When we consider the splendid hospitals for the treatment of medical and surgical cases, and the special hospitals for the eye;—when we hear of the great things that are to be done for incurables, and towards rearing an hospital for children's diseases, I may be pardoned expressing the hope that soon an hospital, with suitable means for clinical instruction worthy of our great city, may be provided in the room of this one.

“It is now thirty-two years since a yearly course of clinical instruction in connection with this institution was begun, and, as far as I am aware, this practice has been regularly continued. In those early days of clinical teaching the advantages derivable from it were neither understood nor appreciated; and, least of all, would it be supposed that such an every-day event as a ‘confinement’ would require such means to make efficient practitioners. It is different now; the line of practical instruction is more clearly drawn, and the advantages to be gained are more fully recognised. Never has such value been placed upon this kind of instruction as at present; and our Examining Boards seem still more determined to take the candidate for a diploma face to face with practical work, and test there his fitness for licence. This is the only institution in the city in which clinical obstetric instruction is given. In view of this, I feel it is no light task I have undertaken. Upon my colleagues and myself rest, to some extent, the education of your eye, your ear, and your sense of touch, in so far as these are employed for our special work. On the other hand, I am glad to say the object of a clinical course being simply an aid in practical training, the burden of acquiring the obstetric art will still rest upon you, and upon your diligence and the faithful discharge of your duties here. We will co-operate with you to make your labours efficient. The instruction will be given synthetically, as far as this can practically be done. This plan will enable me to confine myself to the details of natural labour, the management of the puerperal state, and to the various accidents which may arise during its progress. This has been the plan hitherto adopted here; and as the successor of my friend the Professor of Midwifery in Anderson's University it falls to me to take up the duties he so long and so ably discharged.”

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GLASGOW ROYAL INFIRMARY SCHOOL OF MEDICINE.—At a meeting of the Managers of the Royal Infirmary, held on May 16, the following were appointed lecturers in the above School:—Anatomy—Henry E. Clark, M.R.C.S., Eng.; Chemistry—John Clark, Ph. D.; Physiology—William J. Fleming, M.B.; Surgery—Hector C. Cameron, M.D.; Practice of Medicine—A. Wood Smith, M.D.; Medical Jurisprudence—William Macewen, M.D.; Midwifery—James Stirton, M.D.; Materia Medica—John Dougall, M.D.; Pathology—David Foulis, M.D. The classes will commence on November 1. All the lectures will be delivered within the Hospital. We believe that there is every probability that the new school will start with a fair number of students—a number which will no doubt increase yearly, as the opportunities afforded for practical clinical instruction are perhaps unequalled; and we are hopeful that the new spirit infused into the teaching of medical science in Glasgow will lead to larger numbers of students being drawn hither, and to the spread of the fame both of the University and the other medical schools.

## BOOKS, PAMPHLETS, ETC., RECEIVED.

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- On Tracheotomy in Croup and Diphtheria. By George Buchanan, M.A., M.D. Reprinted from the *British Medical Journal*.
- On Overwork and Premature Mental Decay: its Treatment. By C. H. F. Routh, M.D., M.R.C.P. London: Baillière, Tindall & Cox. 1876.
- The Superannuation of Officers in British Hospitals for the Insane; its Principle, Policy, and Practice. By W. Lauder Lindsay, M.D., F.R.S.E. London: J. & A. Churchill. 1875.
- Clinical Lectures on Diseases of the Heart and Aorta. By George W. Balfour, M.D., F.R.C.P., Ed. London: J. & A. Churchill. 1876.
- Chirurgische Studien und Erfahrungen mit Zugrundelegung des im italienischen Feldzuge des Jahres 1866 gemachten Beobachtungen. Von Dr Carl Fieber. Wien, 1875.
- Diseases of Modern Life. By Benjamin Ward Richardson, M.D., M.A., F.R.S. London: Macmillan & Co. 1876.
- On Stethotomy. Being an account of a new and more exact method of measuring and examining the Chest, with some of its results in Physiology and Practical Medicine. Also, an Appendix on the Chemical Examination of Respired Air. By Arthur Ransome, M.D., M.A. (Cantab), Lecturer on Public Health in the Owen's College, Manchester. With Illustrations. London: Macmillan & Co. 1876.
- On Tracheotomy, especially in relation to Diseases of the Larynx and Trachea. By W. Pugin Thornton. J. & A. Churchill, New Burlington Street.
- A Guide to the Examination of the Urine. Fourth Edition. By J. Wickham Legg, M.D. London: H. K. Lewis. 1876.
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- On Port-Wine-Mark and its Obliteration without Scar. By Balmanno Squire, M.B. London: J. & A. Churchill. 1876.

THE  
GLASGOW MEDICAL JOURNAL.

October, 1876.

Original Articles.

I.—CASE OF LYMPHATIC LEUKÆMIA, WITH TUMOUR IN THE  
MEDIASTINUM.

By JAMES GOWANS, M.B., *Resident Assistant at the Glasgow Western  
Infirmary.*

W. G., aged 25, an iron moulder, was admitted on May 18, 1876, to the Western Infirmary, under the care of Dr Finlayson, with enlargement of the lymphatic glands and signs of pleurisy on the left side.

His family history was very unsatisfactory, several relatives having died of consumption. His own health, however, had been remarkably good until the commencement of his present illness. About three months before admission, he was exposed to sudden and unusual extremes of temperature, and after his return from work one evening he was seized with a severe rigor, which was followed by pain in the left side of the chest. This pain increasing and becoming associated with cough, medical assistance was called in, and he was pronounced to be suffering from pleurisy. He remained under medical treatment until within a few days of his admission, by which time he had so far recovered that he was advised to go to the country. On the 15th of May, while making arrangements for his departure to a convalescent home, he fainted on the street,

and had to be assisted home. Shortly after the commencement of his illness there was found to be enlargement of the glands in various parts, but they were not painful. About the same time he began to complain of pain and tenderness in the epigastrium, and just before admission this had increased so that he could not move in bed or allow the part to be touched. He had been gradually losing colour during his illness.

On admission, his chief complaint was of pain and tenderness in the epigastrium, and enlargement of the lymphatic glands, with increasing weakness and difficulty in breathing. There was marked paleness of the skin and mucous membranes, without any discolouration. On the left side of the chest and abdomen, as well as in the left leg, there was considerable œdema of the cellular tissue, but on the right side there was little or none. In the neck, axillæ, and groins, the lymphatic glands were enlarged. These had become so at different times during his illness, and while those which had appeared recently were painful and tender, the others were painless and apparently quiescent. There were obvious signs of pleuritic effusion on the left side, with intercostal bulging at the lowest part of the lateral region, and there was displacement of the heart to the right side; there was almost total suppression of the true vesicular murmur, but tubular breathing was heard all over the left side, and the vocal resonance was increased on this side. Except where encroached upon by the dulness continuous with that of the left side, percussion over the right side was clear, and the respiratory murmur was puerile. No râles were heard over any part of the chest. There was no cardiac bruit; pulse 108 per minute. The blood, when examined under the microscope, showed a large increase in the proportion of white corpuscles; this proportion varied in different fields—1 white corpuscle to 2, 5, or 10 red corpuscles. The liver was considerably enlarged and displaced downwards. Its surface felt smooth and regular, but there was considerable pain and tenderness, especially in the epigastrium. The spleen was considerably enlarged, forming a tumour which could be felt to occupy the left lumbar region, and quite separable from the liver. There was no fluid in the peritoneum. The appetite was good, and

there had been no sickness or vomiting. There was no giddiness. The urine contained a faint trace of albumen.

For a few days after admission there was a slight abatement of the symptoms, soon succeeded, however, by a further development of the glandular mischief, and soreness of the throat with hoarseness began to be complained of; the tonsils were found to be swollen and inflamed. On the 25th, the previously enlarged glands in the left groin became more swollen and painful, and during the next day or two the glands under the left jaw and above the inner condyle of the left humerus became similarly affected. These all continued to be enlarged and painful for several days, steam and iodine inhalations being used for the throat and hot fomentations for the other affected glands. During the progress of this glandular irritation there was a marked elevation of temperature reaching 103.4 on the morning of the 27th, the mean during the week being 100.5 F. in the morning, and 101.3 F. at night. By the 31st May the pain and swelling had considerably abated. On that morning, after exposure during the night by sitting up, there appeared the signs and symptoms of a pleuritic attack on the right side, but this subsided in a day or two without the occurrence of effusion. The gland in the neck had now become fluctuant, and on June 6 this abscess on the left side was opened, discharging a considerable quantity of healthy-looking pus. The dyspnoea had by this time considerably increased, and the decubitus was more constantly on the left side; there was also a temporary increase in the extent to which the dulness of the left side encroached upon the right. After this there continued to be occasional enlargement and irritation of the different glands, but with the exception of one under the right jaw, which also suppurated and was opened, they subsided after a day or two. On the 16th of June the sputum contained blood, and continued to have a rusty appearance for about a week, but apart from slight pain, and some tubularity of the breathing at the right apex, there was no change in the chest signs. The dyspnoea and dropsy continued to increase, and by the 6th of July he had to sit up in bed almost constantly, although the pain and cough had gone. At this time there was found to be fluid in the

peritoneum, and the scrotum had become very œdematous, but was relieved by puncturing. Pain and distension of the upper part of the abdomen was much complained of, and was not much relieved by poulticing. There was but little change in the physical signs in the chest. The urine, at first only occasionally albuminous, had now become persistently so, but no tube casts could be detected. The bowels were constipated. On the morning of the 9th, the scrotum, which had again been punctured, began to slough. A large quantity of pink froth was expectorated; this was associated with attacks of extreme dyspnœa, and abundant moist râles were now heard over the right side. He died about mid-day.

At the *post mortem* examination, which was made by Dr Coats, the pericardium was found to contain a considerable quantity of fluid; its parietal layer was considerably thickened by the presence of new-formations continuous with a mediastinal tumour; its visceral layer was also the seat of a pale new-formation of considerable thickness, and occupying the position of the external fat, which it also partially replaced. On the ventricles this pale substance penetrated downwards along the vessels, and into the muscular substance to some extent. The root of the lungs was occupied by an irregular bulky mass, which varied in colour and consistence at different parts. At some places it was soft and greyish-red, at others pale and firm. It surrounded the bronchi, trachea, and great vessels, and was continuous with similar structures in the neck. It did not penetrate the lungs nor show any tendency to form isolated tumours in any of the neighbouring organs. The left pleura contained a very large quantity of fluid, but there was almost no lymph on its surface, and this lung was entirely collapsed. In the right pleura there was a moderate quantity of fluid, with some recent lymph and some old adhesions. The peritoneal cavity contained a small amount of fluid. The liver was considerably enlarged and pale, weighing over 5 lbs. The spleen was enlarged, weighing one pound; its tissue was soft and pale, without any apparent enlargement of the malpighian bodies. The left kidney was large, but was preserved for examination after injecting; the right kidney weighed 11

ounces, and was the seat of a considerable number of pale tumours, mostly of considerable but somewhat indefinite limits. The lymphatic glands of the abdomen were moderately enlarged. In the small intestine all the Peyer's patches were unduly prominent, and some of these approached in appearance the condition found in the first stage of typhoid fever. In the lower part of the ileum a few of the solitary follicles were affected, while in the large intestine there was a general enlargement of these follicles, the mucous membrane being dotted over with nodules about the size of a split pea. The glands in the groin were very considerably enlarged, some of them softened into a greenish pus, some of them cheesy, some of them pale and rather firm, and some of them soft and of a reddish-grey colour. The medullary spaces of both femora were occupied by a dark red tissue.

On microscopic examination the tissue on the surface of the heart was found to consist of round cells, in the midst of which were scattered fat cells. The mass filling the mediastinum consisted largely of round cells, the normal constituents often appearing as connective tissue trabeculæ. The growths in the kidney did not replace the secreting tissue, but between and around the tubules and malpighian tufts there were enormous quantities of round cells in the affected districts. The liver presented moderate fatty infiltration, and in addition there were occasional collections of round cells at the borders of the lobules. The medulla of the femur consisted essentially of round cells, there being apparently no fat remaining.

#### REMARKS BY DR FINLAYSON.

This patient presented an interesting contrast to the case of the woman with Pernicious anæmia, recorded in last number of this *Journal*; they were brought for this purpose under the notice of the students at a clinical demonstration last summer. The case was diagnosed as splenic and lymphatic leukæmia, with pleuritic effusion and probably some glandular growth in the anterior mediastinum. The examination after death, however, showed that the spleen, although distinctly enlarged, was not itself involved. A speculation was thrown out, in making

the demonstration of this case, as to whether the albuminuria might be due to a direct affection of the kidneys by leukæmic nodules; but, in the presence of dropsy, &c., no definite opinion could be formed.

The chief points worthy of note in this case were:—

1. The very universal affection of the glandular system, the extreme degree in which the intestinal glands were involved, the distinct affection of the kidneys, and of the medulla of the long bones.

2. The occurrence of suppuration in the glands both in the neck and groin.

3. The remarkable way in which the growth in the mediastinum had affected the pericardium and penetrated to the adipose tissue around the heart, and even to the ventricular walls.

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## II.—THREE CASES OF PELVIC HÆMATOMA: WITH REMARKS.

By JOHN BRUNTON, M.A., M.D., *Examiner in Midwifery and Forensic Medicine in University of Glasgow, Surgeon to the Royal Maternity Charity, Fellow and Chairman of Council of the Med. Soc. London, Fell. Obst. Society, &c.*

*Read before the Medical Society of London.*

IN the present paper it is not my intention to enter into an exhaustive discussion of the subject, but rather to put before you some cases which I trust may be of practical importance, and give you some remarks upon them, in the hope that they may induce other fellows of the Society to record their experience, which I am sure will be for the mutual advantage of all.

Pelvic hæmatoma, or blood tumour, occupying some part, or it may be nearly the whole of the pelvic cavity in the female, is an affection the frequency of which has been a matter of some difference of opinion amongst writers on the subject. If one can be allowed to form an estimate of its frequency from one's own practice, it is a comparatively rare disease.



I do not think, however, that it would be just to form this estimate; yet, in a practice of which obstetrics has formed a large share, and extending over a period of some sixteen years, three cases only have occurred. These I shall detail further on.

I have used the expression pelvic hæmatoma, because I think it includes all the varieties of the affection, which have been named by various writers as they have occurred, as retro-uterine, ante-uterine, peri-uterine hæmatocele, and more generally uterine hæmatocele or hæmatoma.

One writer, of home and foreign renown—Dr Robert Barnes—has contributed a most exhaustive paper on this subject. He has taken a very wide view, and has included all cases in which blood, from whatever cause, has escaped into the cavity of the pelvis: such, for example, as the hæmorrhage which follows rupture of the uterus, extra-uterine foetation, whether tubal, ovarian, or abdominal.

In the present paper I desire to take a more limited view of the case, much after the manner of what I believe was originally described by Nelaton as a bloody tumour, tense in its character, and occupying Douglas' pouch, pressing the uterus forward against the bladder and symphysis pubis. I have said "after the manner," for while the retro-uterine hæmatoma is by far the most common, yet cases are on record of other kinds—ante-uterine and peri-uterine—the latter partaking of the characters of this and something more. The hæmorrhages just spoken of occur *within* the peritoneal cavity.

Besides these forms, another class, and which I include under pelvic hæmatoma, is mentioned as extra-peritoneal, that is, existing in the areolar tissue around the uterus, while a third form has been described as intermediate; the blood passing between the two layers of peritoneum forming the broad ligaments and reaching the site of the ovaries, or amid the pelvic viscera in general.

Of these latter kinds, my cases are not examples, and I shall pass over these forms with the remark that, according to most writers on the subject, they are rare, excepting

when due to traumatic causes, and to the accidents of child-bed. However, the late Dr James Simpson was of opinion that the latter form—viz., where extravasation of blood occurs between the layers of the broad ligament, was the most frequent.

The cases I have to narrate were seen, in conjunction with me, by Dr Ashburton Thompson on many occasions during their course.

*Case I.*—On the morning of the 3rd March, 1872, I was summoned in a hurry to attend to my coachman's wife, Mrs N., who was stated to be dying. On arrival at her house I found her lying on the sofa, looking much as if lifeless. She was pale, anæmic, pulseless, powerless, with cold breath, and able to speak only in whispers. Restoratives were immediately applied, and after a time I was able to obtain some history of the case.

I had previously attended her in two confinements, in both of which she did well. Mrs N. is 28 years of age, fair in complexion, not delicate, and had been in fairly good health up to present attack, except that for the past month she had been having a little menstrual discharge daily. On the occasion of this illness, which was ushered in with sharp pain, the external discharge suddenly ceased.

The symptoms in this case being evidently of internal hæmorrhage, it was deemed prudent to do as little as possible in the way of moving the patient, and frequent vaginal examinations were considered injurious. The first and only examination revealed a natural condition of the os uteri as to size, but unnatural as regarded position. It was high up and anterior. The abdomen was tender to pressure, and for some days micturition was difficult and painful.

The patient was ordered to keep *perfect* rest, on no account to move or be moved, to have restorative treatment—eggs, beef tea, panada, and the like, a little stimulant, and sedative medicine. So ill was she that it was considered wise to keep her to her sofa, and to permit of as little movement as possible for a week, at the end of which time she was removed to bed.

There was a diffuse, boggy swelling over the lower part of her abdomen, indicating the presence of effused blood. The abdomen was tender to pressure, the bowels difficult to move, and when moved, accompanied with great pain.

No further effusion apparently took place. At the end of three weeks from the time of removal to bed, and four from date of onset of illness, she had an attack of what she called diarrhœa, but on inspecting the stools, I found there was a considerable quantity of dark, grumous blood present. Several motions of this kind occurred for two or three days, and gradually the patient recovered her usual health, all swelling disappeared, and she was soon able to resume her household duties. At the present time she is quite well, and has continued so since her illness. During the illness there was no increase of temperature worth recording.

*Case II.*—On the 24th May, of this year, 1876, I was summoned to visit Mrs M., æt. 30, a tall woman, of moderate health, mother of one child a few years old. She stated that she supposed she was about to miscarry, because she was having uterine hæmorrhage somewhat freely. As far as I could learn, this discharge from the uterus came on a fortnight before her usual period of menstruation. On examination I could make out no enlargement of the uterus, or opening of the os uteri. There was, however, a pretty free discharge. I ordered her to keep her bed, to have light nourishment, and some nitric acid, with gentian.

She went on apparently all right for some days. The discharge gradually ceased. She got up and went about her household duties, and I ceased further attendance.

On the 13th of June I was again requested to attend her. This was about the end of her period. Quite a different state of affairs now presented itself. The principal complaint was of sickness and vomiting of a persistent nature, abdominal pain, fainting and weakness. On examination, her countenance had an expression of anxiety, face pale, lips anæmic, tongue clean and pale and bloodless, pulse 120, feeble, skin cold and clammy, breath cold. She had the appearance of one who has collapse from hæmorrhage. The abdomen

at its lower part was tender to pressure, and there was dulness on percussion, which gave pain as if in the bladder, producing desire to make water. There was a little vaginal discharge of a brownish colour, not offensive. The os was natural in shape, high up, and anterior, uterus movable, and behind there was a well-marked swelling, reaching down into Douglas' pouch, which, *per rectum*, it was very easily ascertained, was not hard, but doughy. The pressure on the bladder being severe, I passed a catheter, which drew off only a little urine, and gave no relief. I ordered her to keep the recumbent posture, and on no account to get up. As there was a good deal of abdominal pain, sedatives, with aconite, were administered, and turpentine stupes applied to the abdomen. Ice, soda water, lime water given for the vomiting. There was no increase of temperature.

By the 15th some additional abdominal pain arose, with tenderness, necessitating, for comfort, flexure of the thighs upon the abdomen. The vomiting had been relieved. The urinary difficulty still existed, but did not need the catheter. A slight increase of temperature took place, so calomel and opium were deemed necessary. It gave great relief.

Daily the patient seemed to recover strength under nourishing diet and rest. On the 24th she got up a little of her own accord, and seemed quite cheerful and apparently recovering well, but our hopes were false. A fresh attack of vomiting and pain set in, with increased difficulty of micturition and defecation. The abdominal swelling increased considerably, the countenance was more anxious, and the pallidity and anæmic appearance, which had been gradually disappearing, returned. No particular increase of temperature arose. On examination *per rectum*, the posterior uterine region was found to be occupied by a large, soft, boggy tumour, not fluctuating, which pressed upon the rectum and nearly completely blocked its passage.

The patient grew daily more feeble, and there was the manifest appearance of successive hæmorrhages, indicated by faintness and pallor, with cold sweats. The abdominal tenderness became greater, and was accompanied with

enormous flatulent distension. Symptoms of collapse set in, and on the sixth of July she died.

During all her illness she was carefully nursed—fed, and whatever medicine was deemed necessary was administered—such as aconite, calomel and opium, cinchona with ammonia, quinine, bromide of potassium, and the like.

A post-mortem examination was made by Dr Ashburton Thomson, who had seen the case several times with me. As the weather was very warm, and the relations did not desire much to be done, the abdomen only was opened. It presented *no trace* of peritonitis whatever. The intestines were natural in appearance, and pushed from below somewhat out of place by the presence of about three pints of semi-coagulated dark blood, which occupied the pelvic cavity. A very careful search could not detect any ruptured vessel in the uterus, its appendages, or any neighbouring part, nor any appreciable change in their appearance from the normal. The effused blood pressed the uterus forward and collapsed the bladder, and nearly closed the rectum by pressing on it.

*Case III.*—The next case is at present under treatment, and is now, so to speak, convalescent. Mrs W., æt. 25, mother of two children, of fairly good health, was in her usual condition, and had been regular for several months. Her last menstrual period terminated on the 25th August, 1876. On the 2nd September, she went with her husband on a visit to the country, and on the 5th, while riding in an omnibus, she was suddenly seized with violent abdominal pain. She became sick, vomited, and grew faint. This pain continued for a week or more, accompanied by retchings, and then uterine discharge came on, with relief to the pain. She had not in the meantime kept her bed. About this time, the 9th day, frequent desire to micturate supervened, and her condition became so intolerable that she resolved to come home. She was attended to on the 19th by Dr Thompson, who found her in such a critical condition that he requested me to consult with him next day. On the 20th, I found her in bed, with an anxious expression of countenance, looking exceedingly pale and bloodless, white lips and

pale tongue, pulse 140, very feeble, temperature depressed. Very weak, and complaining of abdominal tenderness, irritability of bladder, vomiting and faintness.

On examination her urine was normal, and the bladder nearly empty. *Per vaginam*, the os uteri was situated high up, normal in size, and posterior, while the roof of the vagina was stretched, bulging anteriorly and towards left side, soft and tender on pressure. There was a little vaginal sanguineous discharge. *Per abdomen*, a soft, undefined swelling existed in left iliac fossa, dull on percussion.

To be kept quiet, have nourishing diet, acid mixture, with ice, soda water, and the like.

On the 24th the hæmorrhage appeared to continue; retching still present, with some severe pain; countenance more pallid; she cannot move without fainting. The retching continues to distress her very much, and as in the other case narrated, the least effusion of blood seems to be accompanied with retching.

I suggested the use of spirit of turpentine, to be given in 5 min. doses on loaf sugar every two hours. From this date gradual improvement took place. The internal hæmorrhage, to all appearance, soon ceased, as there was no more retching and little pain—the bladder continued irritable, however, and the uterine discharge did not cease.

28th.—Irritability of bladder less, pain less, retching gone, feels more comfortable and in better spirits. Tongue clean; bowels uneasy; pulse a little stronger. To continue the fluid food and the turpentine. To keep strictly to the recumbent posture.

Things went on favourably with her, the swelling in the neighbourhood of the uterus became more defined, because contracted and hardened, and day by day a manifest process of absorption was going on, for the tumour lessened in size, and the patient grew quite cheerful, the pulse sinking in number to 90 and increasing markedly in strength, while the patient gradually was assuming her natural appearance. Unhappily, on the 4th October I found a condition of relapse; pain had recurred, but no vomiting; the pulse went up to

120, feeble; pallor of countenance again supervened, and on examination I found that a hæmorrhage had taken place on the right side; while that on the left was nearly absorbed. On close questioning I received, with manifest reluctance, the admission that my patient had been sitting up on the 3rd, and had only taken her turpentine once a day for some days.

I immediately ordered strict obedience to my instructions, a more close and earnest application of remedies and rest, and to-day, October 16th, I have to report that the patient is convalescent. The tumour is hardened and being absorbed; all urgent symptoms have disappeared; the pulse is 84; tongue clean; appetite good; no bladder difficulty; bowels open; temperature 99; very little, if any, tenderness in the abdomen. The aspect of the patient is satisfactory; she is cheerful, and means to get well.

October 18th.—Patient feels much better. No pain; pulse 72, fair; appetite good; tongue clean; abdominal tenderness slight; tumour in right iliac region defined and evidently both contracting and being absorbed; urinary difficulty much lessened. Continues the turpentine without any specific poisonous effect—such as dysuria.

The turpentine was now reduced to four doses a day.

October 20.—Dr Thompson visited her to-day, and as he had not seen her for a fortnight, was quite surprised at the improvement in her condition. He reported the tumour much less in size, lower down, and the general condition of the patient as vastly ameliorated.

28th.—Has kept the recumbent position strictly, since I pointed out to her on the 4th the great danger of getting up even for necessary purposes. Her general appearance is much better—there is no abdominal tenderness, and manipulation discloses the remains of the contracting blood tumour. Says that she feels herself daily recovering. Tongue clean. Appetite good. Bowels opened by medicine and without pain.

October 30.—Patient looks well; is still confined to bed; tongue clean; appetite good; bowels open; pulse 68; of fair strength; temperature normal; has no pain. The

remains of tumour in pelvis can be felt above the symphysis. Tumour defined, and evidently lessening since last examination. *Per vaginam* the os is posterior. There is some bulging of the vaginal roof anteriorly. Uterine discharge still continues thick and brown, but not offensive.

On analysing the various symptoms and signs which arose in the above cases, it will be noted that in all of them there had been (*a*) previous good health; none of the patients had had any uterine affection, until (*b*) there arose a certain menstrual disturbance which lasted sometime, before (*c*) a sudden onset of most alarming symptoms, manifested by pallor, faintness, pain, anæmia, and the general symptoms of shock, closely resembling collapse from hæmorrhage, then followed, (*d*) vomiting and irritability of the bladder, (*e*) no increase of temperature, (*f*) difficulty in obtaining action of the bowels without great pain.

The principal *signs* consisted of those connected with the shock, as coldness of skin, feeble, rapid, and compressible pulse, tenderness of the lower part of the abdomen, where there was found, on external examination, a boggy swelling, at first somewhat diffuse, afterwards more definite. *Per vaginam* the uterus drawn up and the situation altered, the bladder contracted, and in the case in which the catheter was passed, containing little urine.

Then during the illness in the first patient, the uterine hæmorrhage ceased with the onset of the attack, while in the other two it continued to a minor extent during the course of the disease, but with a certain amount of relief of pain in the last.

As regards *the treatment* of the cases. On ascertaining their serious nature, *the recumbent position* was strictly enjoined, and *repeated examinations* were studiously avoided, because both changes of posture and manipulations must, of necessity, disturb a condition of parts which, "above all, require repose." For the same reason, it was obviously the right plan of procedure to make every endeavour to allay the excessive retching which, while itself a result, at any time might be a fresh cause of hæmorrhage.



As regards the general line of treatment, it was pretty much expectant in the first cases. Sustaining diet, tonics, and sedatives were duly attended to, and medicine given when required to relieve the bowels.

The fatal issue of the second case, which manifested a succession of hæmorrhages, suggested the thought of administering spirit of turpentine in the third case. A long experience of its well-known anti-hæmorrhagic power when administered in cases of hæmatemesis and hæmoptysis induced me to try it. The most marked improvement followed its administration, not only when given first, but as the details of the case will shew, when the patient thought she was going on all right, she, like many other patients in our experience, omitted to take her remedy, a fresh attack ensued, which was as speedily arrested by the resumption of the drug. She has, however, continued to take it daily for nearly a month, without the production of its usual poisonous effects. The *modus operandi* of turpentine, as far as I know, has not as yet been ascertained. It is a drug of experimental renown. That it is one of the most powerful *anti-hæmorrhagics* in our possession is undoubted. Locally applied, I have not found it of service in arresting bleeding, but administered internally, its power is, I might say, magical. Perhaps its action is purely physiological, affecting through the sympathetic nerve, the *nervi-vasorum*, and consequently the capillary muscular tissue; or may be its action is after absorption from within, circulating in the blood, it stimulates the minute vessels to contraction. Does it do so by parting with its oxygen? or how? These are matters for investigation.

A remarkable thing may be noted, however, in this, as in other cases of disease, which I have treated, and that is, the toleration of the drug. With reference to case No. I., its termination was happy—nature relieved herself of the incubus, by one of the common ways narrated in books. A spontaneous opening arose in the rectum, the grumous-looking blood was discharged, and complete recovery ensued. In case II., a succession of hæmorrhages, accom-

panied with abdominal pain, as severe as acute peritonitis, terminated in collapse and death.

The *post-mortem* examination showed that the presence of blood in the peritoneal cavity did *not set up* any inflammatory action whatever. I must confess that I fully expected that there would be found the signs of pretty extensive peritonitis; and as regards the quantity and character of the blood, it was semi-coagulated, not offensive, and of a sufficient quantity, under the circumstances, to prove fatal. In no place was it encysted.

As to its source, that is a difficult question. Most likely this was one of the cases where the blood has passed from "the fimbriated extremity, or course of the fallopian tube, or even from the cavity of the uterus—the blood regurgitating along the fallopian tube into the peritoneal cavity." It is possible that a ruptured vessel in the pampiniform plexus or elsewhere may have been overlooked, but I do not think that one who took so much interest in the case would have been likely to pass such over, if it had occurred.

In the other patients it is but a matter of conjecture as to whence the hæmorrhage came from. Very possibly from a similar source, or a ruptured ovary in an excessively congested condition of the parts, or as has been suggested to me, that there has been a general oozing from uterine base and appendages. This may have occurred in the third patient, but I think the suddenness of attack in the first one points to some immediate large vascular rupture.

Before finishing, I should just like to make a remark about the temperature in these cases. During the whole of their course there was little or no variation from the standard worth recording, even in spite of the severe pain; and in the fatal case, though at one time there was a rise to 100.5, the absence of peritonitic pathological appearances quite accords with the moderate thermic conditions.

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## III.—NEW METHOD OF AMPUTATING AT THE HIP-JOINT.

*By MR NEWMAN, House Surgeon, Western Infirmary, Glasgow.*

THE various expedients, resorted to for the temporary arrest of hæmorrhage during operation, whether it be the grasp of an assistant, the Petit tourniquet, or Esmarsh's elastic band, are all easily and effectually employed to stop the flow of blood in operations upon the extremities, when the seat of the operation is sufficiently low down to allow of their application, without interfering with the free use of the knife. Thus, in an amputation upon the upper or lower extremity, say at the elbow or knee, the pressure is easily applied above these points. But it is otherwise in amputation at the shoulder or hip; the tourniquet, in whatever form, is inapplicable, the incisions being made so high up that it is impossible to apply it, and digital compression of the artery, in either case, cannot be depended upon; so that fear of incontrollable hæmorrhage always presents itself to the surgeon. So much so was this the case, that at one time it was advised that the femoral artery, in cases of hip-joint amputation, should be ligatured before the operation was begun. Sir A. Cooper, after mentioning several cases of this operation performed by Larry, Guthrie, and others, without previous ligature of the main artery, goes on to say: "Notwithstanding the great respect I entertain for these authorities, I am disposed to think that the operation cannot be safely performed without securing the artery in the first instance," thus showing the great dread which this eminent surgeon held in view, and which was one of the principal objections to the operation: for this cause, of all the circumstances taken into consideration to determine the method of operation, the avoidance of hæmorrhage was one of the most important. But amputation at the hip-joint, though necessarily a dreadful operation, has become much more frequent since the introduction of chloroform, which, doubtless, deprives it of much of its horror, as well as diminishes the immediate danger of such an extensive wound. But however much chloroform may assist in making

the operation less disagreeable to the operator, and, to some extent, safer to the patient, yet it is of but little avail in arresting the flow of blood, the loss of which the patient is ill able to afford. It therefore devolves upon the surgeon to do all in his power to prevent the loss of a fluid which is so precious, and the saving of which may turn the tide in favour of the patient. This he is able to do in all cases of operation upon the extremities, when the seat of the operation is sufficiently low down to allow of the application of pressure, the method advocated by Prof. F. Esmarsh being probably the most effective. But, however easy it may be to apply pressure to a limb in its continuity, it is entirely different when, in order to check the hæmorrhage, the pressure requires to be applied to the artery as it passes over some part of the trunk,—to the aorta, or to the femoral as it passes over the pubis, in cases of hip-joint amputation, and the subclavian in that of the shoulder. It has been the custom in these cases to amputate by transfixion, and as the knife advances it is followed by the fingers of an assistant, which are introduced into the wound behind the knife, so as to command the arteries previous to their division, whilst another assistant is ready, as soon as the first flap is cut, to compress the vessels in the other flap, either by a sponge or with the fingers. But, even with these precautions, together with pressure upon the femoral as it passes over the brim of the pelvis, or compression of the aorta, as recommended by Professors Lister and Pancoast, the operation requires to be performed with rapidity, in order that dangerous hæmorrhage may be prevented. The arteries, as they are uncovered one by one by the assistants in order to be secured, pour forth part of their contents, which in each individual vessel may not be very large, but, when taken collectively, the amount of blood lost is considerable, and well worth trying to preserve. No doubt the use of the aortic tourniquet, if properly employed, will, to some extent, decrease the flow of blood through the vessels below the point of application, but the difficulty of applying this instrument, and of keeping it in proper position, is so great,

that its adoption is by no means general, besides the danger of applying it too forcibly, or in such a manner as to impede the venous return through the vena cava, are points not altogether unworthy of consideration. Lister, instead of using the aortic tourniquet, adopts Esmarsh's elastic band, wound tightly round the waist three or four times, a towel having been interposed between it and the skin, and a pad placed over the aorta on a level with the bodies of the lower lumbar vertebræ. Esmarsh also employs a similar method. When we consider the unavoidable dangers of anæsthetics, of which we have only too frequent evidence, as shown by the number of deaths during their administration, it is the duty of the surgeon to be extremely careful not to interpose any agency, which might increase the risk of interference with the circulation or respiration. It cannot, I think, but be admitted that the application of a tourniquet to the aorta, which may also compress the vena cava, particularly Esmarsh's elastic band round the waist, must interfere, to a great extent, both with the circulation and respiration. The employment of Esmarsh's band must, by its pressure upon the abdominal muscles, and the abdominal contents, which, in their turn, press upon the diaphragm, interfere with respiration, because in this way two sets of muscles, inspiratory and expiratory, are, as it were, to a certain extent withdrawn, and no longer lend their aid in carrying on a function so necessary to life; besides the injurious effects which might result from such powerful and continuous pressure upon the sympathetic ganglia and nerves, and upon the viscera. In the method which I propose, the pressure is neither applied to the aorta, nor to the femoral as it passes over the brim of the pelvis, but is brought to bear upon the base of the flaps. In order to accomplish this, however, it is necessary that certain modifications, both in the instrument and the mode of operating, should be adopted. I shall first describe the appliances, and then go on to consider the necessary alterations in the operation.

The instrument may be described as follows :—It consists of a knife, the blade (*a*) of which is twelve and a-half inches long, and one inch broad. It is shaped as shown in the drawing (Fig. I). Measuring from the handle, the first nine inches is half-an-inch broad, and the remaining three-and-a-half inches, an inch broad, and tapering to a point. Into the space thus left in the back of the blade, two steel slips (Fig. II. *b*) are fitted, nine inches long, two-fifths of an inch broad, and one-tenth of an inch thick. At the point end of each slip, a small oblong hole (Figs I. and II. *c*) is made, with a pin passing across it. To the handle end of each slip, an elastic band (Figs. I., II., and III. *e*) is attached, in such a way as to allow of the band being elongated or shortened as the case may be. To the end of the elastic band, (Figs. I., II., and III.) a hook (*d*) is attached, which is used to connect the elastic band with the other end of the steel slip. The back (*f*) is stretched from the handle to the broader portion of the blade. The parts, when put together, are perfectly flush, and in no way interfere with the knife when used in cutting. The handle (Figs. I. and III., *g*) is four-and-a-half inches long, and has two small snibs (*h*), which are used to keep the steel slips in position.

The method of performing the operation most conveniently is by making antero-posterior flaps. Before proceed-

Figs. I. and III. Knife complete.

„ *a*. Blade of knife.

„ *b*. Steel slips in side of knife.

„ *c*. Small pin for fastening the hook, *d*.

„ *d*. Hook at the end of elastic band.

„ *e*. Elastic band.

„ *f*. Back of knife.

„ *g*. Handle, with a snib (*h*) on each side to keep the steel slips in position.

Fig. IV. Shows how the knife is held.

Fig. V. The knife passed posterior to the bone; the limb being adducted, rotated inwards, and slightly extended.

Fig. VI. The knife passed anterior to the bone; the limb abducted, and rotated outwards.

Fig. VII. The anterior flap formed; the joint disarticulated; and the knife passed round the head of the bone; both flaps compressed between the steel slips and elastic bands.

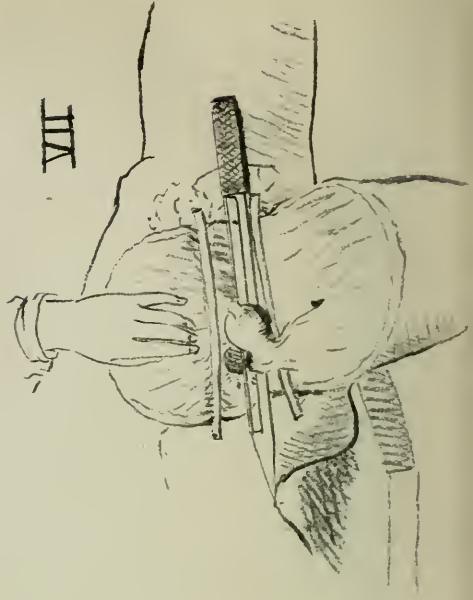
\* \* \* The instrument, as described above, may be had from the only maker, Mr Archd. Young, 58 North Bridge, Edinburgh.



IV

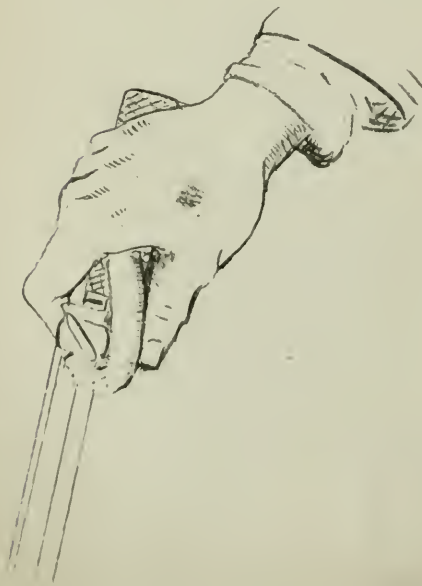


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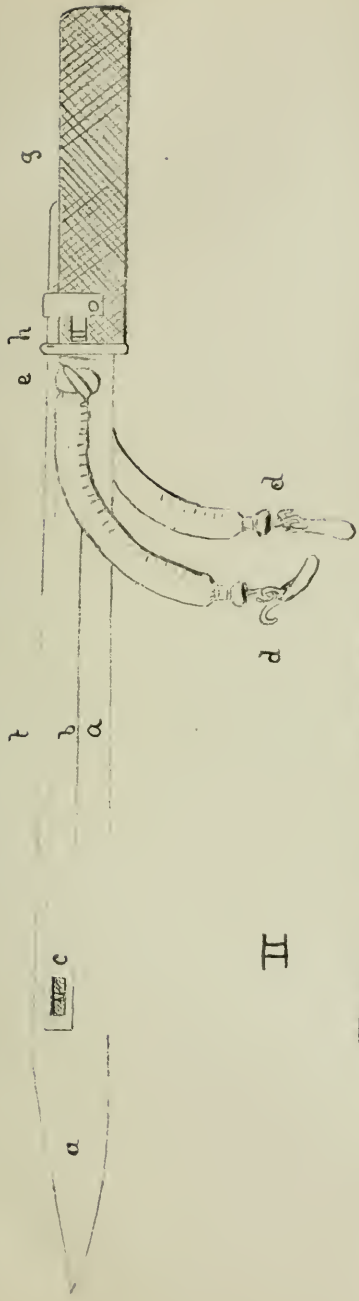
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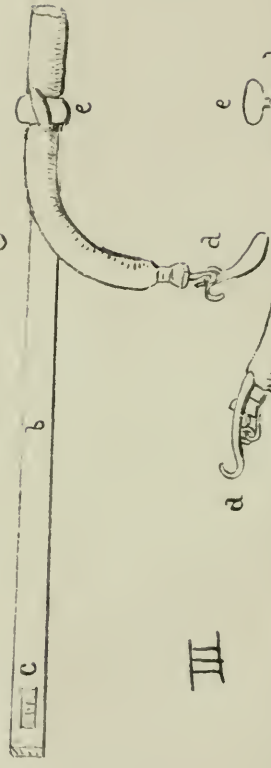




I



II



III





ing with the operation the limb should be tightly bandaged either with a wet calico, or an elastic bandage, in order to press out all the blood from the vessels of the limb; and when this is inapplicable, the limb should be elevated and pressure applied by the hand. After this has been done, the patient should be put under the influence of an anæsthetic, and the breech drawn down to the margin of the table, and secured there by a bandage passed round the sound limb and across the pelvis, and made fast to the leg of the operating table. The diseased limb, which, for the sake of description, we will suppose to be the right, should be confided to the care of a trustworthy assistant, whose duty it is to alter the position of the limb as required during the different stages of the operation.

The thigh should now be adducted and slightly extended, so as to relax the tissues posterior to the bone. The surgeon stands on the left side of the limb, and holding the knife as shown in Fig. IV., inserts the point a little in front of the tuberosity of the ischium, and passing it outwards posterior to the neck of the femur, brings it out an inch behind the line between the anterior superior spinous process and the trochanter major (Fig. V.) In passing the knife, as soon as the point is found to have come in contact with the neck of the bone, the limb should be rotated inwards, so as to allow the point of the knife to pass out as close to the line between the anterior superior spinous process and the great trochanter as possible. The knife is now lying posterior to the neck of the femur, and almost parallel to Poupart's ligament. The posterior slip should then be removed from the side of the knife. The knife is now withdrawn, so far as to allow the point to be passed anterior to the neck of the femur. The limb is abducted and rotated outwards, so as to allow the point of the knife to emerge from the same wound as it did in introducing the posterior slip. The next part of the operation is to extend the elastic band and hook it, in order to compress the posterior flap, which having been done, the vessels of this flap are so compressed between the elastic band and the steel slip that bleeding from them is

impossible. The elastic band of the anterior slip is now stretched and fastened, and the slip is disengaged from the side of the knife. The position of matters is now as follows:—The posterior slip is compressing the posterior flap, the anterior slip compressing the anterior flap, and the knife lying in front of the neck of the bone close to the anterior slip. The knife is now carried downwards, and made to perform a sawing movement, so as to form the anterior flap. The thigh, which, during this stage of the operation, has been flexed, is now extended, abducted, and rotated outwards, so as to allow the surgeon to open the joint by cutting upon the head of the bone in front. As soon as this has been done the femur is depressed, causing the head of the bone to start forwards; the round ligament and the remainder of the capsule are now cut, the knife brought round the head of the bone (Fig. VII.), and the posterior flap is formed by cutting between the posterior slip and the bone, and then downwards and backwards through the tissues at the back of the thigh.

The amputation having been completed, it will be seen that both the anterior and posterior flaps are compressed between the slips and the elastic bands, so that the escape of blood from the vessels of either flap is impossible (Fig. VII.) The surgeon should now direct his attention to the femoral artery, and the vessels of the anterior flap, that require to be secured, after which the band may be removed and the vessels of the posterior flap tied in turn, and the slip and band compressing it may be detached.

I have described the method of operating on the right side, after which it is quite unnecessary to enter into a detailed description of the operation when the left limb has to be removed, the only difference being that the knife is entered between the anterior superior spinous process and trochanter major, and brought out in front of the tuberosity of the ischium, instead of *vice versa*, as it is on the right side. The way in which the limb is moved during the different stages of the operation is also different, as will be evident; the object, however, being, in the first instance, to bring the point of the knife

out by the same wound, both in passing the anterior and posterior slip, and after the anterior flap has been cut, to disarticulate the head of the bone.

The advantages which are associated with the above method of amputating at the hip-joint, appear to me to be numerous. One of the first, a not inconsiderable one, is that the operation may be performed without the fear of serious hæmorrhage, and without interfering with the respiration or circulation during the administration of anæsthetics, no pressure being applied round the waist, or to the aorta.

The bands and slips so grasp the flaps, that bleeding from the vessels is very slight indeed. I tested this on the dead subject, by having fluid injected into the common iliac artery whilst I was removing the limb. The force used in injecting the fluid, was considerably greater than that exerted by the blood column during life, and the result was very satisfactory, the amount of pressure required to obliterate the artery being much less than I imagined.

Another advantage is, that the surgeon may take his time in operating. The object of performing the operation rapidly, viz., the fear of serious hæmorrhage, being removed, he does not require to hurry over the operation in order to secure the vessels. As long as the bands and slips are in position he may have perfect confidence that the amount of blood lost will be but trifling.

The assistants required to assist the surgeon are fewer than those required to perform the ordinary operation. Thus, the number usually required is as follows:—(1) One to administer chloroform; (2) another to keep the aortic tourniquet, when it is used, in position; (3) another assistant is required to compress the femoral; (4) to hold and rotate the limb, as required, during the different stages of the operation; (5) one to hold the anterior, and (6) another the posterior flap when cut; (7) to pass the instruments, sponges, &c., to the surgeon. This may be all very well when proper assistance can be procured, as in hospital or city practice; but it is otherwise when a country surgeon is called upon to perform the operation with one or two assist-

ants, on whom he cannot always rely. Besides, even when a proper number of good assistants can be had, they are of necessity standing so close to one another, that the movements of the surgeon are much embarrassed.

When the mode of operating, above described, is adopted, the assistance required is much less. Those necessary are (1), one to administer the anæsthetic ; (2) one to hold and rotate the limb ; (3) another to hold the anterior flap when cut, the posterior being allowed to hang down, compressed at its base by the steel slip and elastic band ; (4) an assistant to hand the instruments, &c., to the operator.

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IV.—NOTES OF CASES OF DIABETES MELLITUS, SHOWING THE EFFECTS OF DIET, AND VARIOUS THERAPEUTIC AGENTS ON THE AMOUNT OF SUGAR EXCRETED.

By JAMES BARR, M.B., L.R.C.S., Edinburgh,  
*Late House Surgeon, Northern Hospital, Liverpool.*

CASE I.—T. B., æt. 35, dock labourer, admitted under the care of Dr Davidson, April 23, 1874, complaining of great thirst, polyuria, &c., of fully nine months' standing, during which time he has been unfit for work. About four months ago he was in a very low condition, but since then he has rather improved.

He has never been abroad, and has always enjoyed good health, with the exception of a severe headache six years ago, which lasted several weeks, and for which he was under treatment at the Birkenhead Hospital. He had then a seton in the back of his neck for several days. He has never been intemperate, nor has he had syphilis. He has always worked hard, and states that he has eaten a great deal of sugar from the cargoes while at work.

His father was intemperate, and died from an accident. Mother in good health. No family history of nervous disease.

Patient is of fair complexion, has a large head, and is rather below the medium height. He is greatly emaciated and anæmic. His skin is very dry and scurfy ; tongue

clean, but dry; appetite voracious; thirst very great; bowels confined, and abdomen distended with flatulence. There is no cough, and no œdema of the legs. His temperature in the axilla, 98·2° F.; and under the tongue, 98·0° F. He complains of severe headache.

His chest is narrow, but nothing abnormal detected with either the lungs or heart. Hepatic dulness rather large, spleen normal, urine non-albuminous. He was now put on the ordinary hospital fare, and on the 28th he had full diet, which includes an extra supply of bread.

*May 1.*—As he is still craving for more, he is now allowed as much extra bread as he cares to use.

*May 7.*—He was ordered to-day a restricted diet, consisting of—

Breakfast—1 pint of tea, 2 eggs, a slice of bacon, and 4 ounces of toasted bread and butter.

Dinner—8 ounces of meat, 4 ounces of brown bread, and 2 ounces of cheese.

Tea—1 pint of tea, mutton chop, 4 ounces of toasted brown bread and butter.

Two pints of unskimmed milk daily.

*May 10.*—Custard pudding, without sugar, ordered to have with dinner.

*May 11.*—Appetite and thirst not so great, but he still suffers from headache.

*May 15.*—For the last three days he has only taken about eight ounces of bread *per diem*, and not the full allowance of meat at dinner. He still complains of headache, and the roof of his mouth is very dry and inflamed, for which he is to have a chlorate of potash gargle.

*May 16.*—Small boil on the left cheek. Appetite much less than formerly. Patient cannot eat the bacon for breakfast. Pain over the vertex still very severe. Bowels costive. Ordered pil. colocyn. et hyos. grs. x.

He absconded to-day. (See Table, page 458.)

Re-admitted October 26, 1874.—He considers that there has not been much alteration in his condition since he left. His diet has been poor, and consisted of bread, butter, a

*Determinations of Sugar in the Urine of Thomas B—, by Roberts' Yeast Test, and by Volumetric Analysis with Fehling's Copper Solution, etc. The Examinations, etc., were made daily.*

DATE.	Mean quantities of fluid drunk in pints.	ROBERTS' TEST.				FEHLING'S TEST.		Weight.	Mean temperature.		Diet.	REMARKS.
		Mean volume of urine in fluid ounces.	Mean specific gravity of urine.	Mean amount of sugar in grains.	Mean volume of urine in cubic centimetres.	Mean amount of sugar in grammes.	8 A.M.		8 P.M.			
1874.												
(Inclusive.) April 24-30	9	146					Lbs. 128				Full.	With the extra supply of amylaceous food, the volume of urine rose at once, and the amount of sugar excreted was very great, nearly 20 ounces daily.
May 1-6.	11	221.5	1040	7551	6469	601.1	126	96.2	97.2	Full diet with extra bread.		
" 7-8.	9½	183	1040	6683	5196	507.4		96.0	97.5	<i>Diabetic Diet, viz. —</i> <i>Breakfast</i> —1 pint of tea, 2 eggs, slice of bacon, 4 oz. of toasted bread and butter. <i>Dinner</i> —8 oz. meat, 4 oz. brown bread, 2 oz. cheese. <i>Tea</i> —1 pint of tea, mutton chop, 4 oz. of toasted brown bread and butter. <i>Two pints of unskimmed milk daily.</i>	Under restricted diet, the volume of urine gradually, and then quickly lessened, and the diminution in the amount of sugar was very marked. The great diminution in sugar was no doubt partly due to impaired appetite.	
" 9.	9	140	1040	4765	3076	306.0		97.0	98.4			
" 10-16.	6	90	1036	2237	2551	169.5	119	97.0	97.4			



few potatoes, a little meat, and bacon more frequently. He complains of severe, dull, heavy pain in his head, and lowness of spirits. He is easily fatigued, both bodily and mentally. He has great thirst, parched mouth, voracious appetite, frequent and copious micturition, tendency to flatulent distension of abdomen, and his bowels are usually confined. His vision is dim, pulse 76 weak, body spare, muscles soft and flabby. No swelling of the extremities.

Heart about normal, lung percussion good, and breath sounds normal, or perhaps inclined to be tubular at the apices. Hepatic and splenic dulness not distinctly enlarged. Weight, 122 lbs.

*November 8.*—To-day he was ordered a diabetic diet, consisting of animal food, bran bread, cheese, and two pints of milk.

*November 16.*—He still complains of severe headache, and says he passes very restless nights. He was now allowed four pints of milk daily.

*November 26.*—He is now to have codeia gr. i. thrice daily.

Very little alteration took place in his general condition till the latter end of December, when the weather was very cold; and as the patient was sinking rapidly, it was difficult to keep up his temperature. He died on the 29th.

*Autopsy* forty hours after death. Cadaveric rigidity well marked. Body very much emaciated; and on laying open the chest and abdomen, there was found to be very little adipose tissue. The lungs were generally congested, and the base of the left was in a state of pneumonic condensation of a yellowish-grey colour. At the apex of the right lung there was a mass of caseous pneumonia of about the size of a large walnut. Heart soft and flabby, and muscular striæ pale. Liver apparently normal, with the exception of a few patches of fatty infiltration. Spleen normal. Kidneys large; capsules slightly adherent, structure congested, cortical portion much increased, and bears traces of fatty degeneration.

On removing the calvarium, the dura mater seemed rather congested. Over the greater part of both hemi-



Nov. 15-16	8	160	1039	4815	4550	308·5	.....	Infus. Gent. Co. $\bar{5}$ ss ter in die.	2 ex. pts. of milk.	Under the partly milk treatment the urine and sugar diminished.
... 17-25	8	162	1037	4592	4620	294·8	114	Codeia, i. gr., ter in die.	The same diet as before with- out the chop and less tea; but with 7 pints of milk.	When the quantities had become somewhat stationary, the admin- istration of Codeia was accom- panied by a fall in the urine and sugar; though it might be reasonably doubted whether the decrease was due to the Codeia, especially as, when it was stop- ped, there was no increase; but when it was again resumed, a rise took place.
... 26-30	8	136	1039	4112	3838	256·5	118	No medicine.		
Dec. 1-4	8	127	1039	3915	3606	254·6	.....	Codeia, i. gr., ter in die.		
... 5-11	8	147	1038	4686	4292	300·0	120	Codeia, ii. grs., ter in die.		
... 12-16	8	141	1040	4650	4009	296·6	.....	No medicine.		
... 17-19	8	143	1040	4773	4051	303·1	.....	Potass Brom. grs. xx. et. Sp. Am. Aromat. m.s. xv., ter in die.		When taking Potass Bromide, there was a diminution, but this was, most probably, partly due to the cold weather, which was the potent agent in causing such reduction during the last two days of the patient's life.
... 20-26	8	146	1038	4313	4162	281·1	.....			
... 27-28	6	85	1033	1617	2413	95·2	.....			

spheres, but more especially in the neighbourhood of the longitudinal sinus, the arachnoid was very thick and opaque, due to abundant lymph effusion. The convolutions were considerably atrophied, the sulci being wide and deep, and the gyri standing prominently out. Slight amount of lymph at base. The lateral ventricles contained a large quantity of fluid, and all the cornua were dilated. Outside the right corpus striatum, and anterior and internal to the upper part of the right crus cerebri, there was a cyst which would hold a drachm of fluid.

Brain substance very firm. On microscopic examination of the pons and medulla there were found numerous large perivascular spaces, which were first pointed out by Dr Dickinson as a constant lesion in diabetes. (See Table, pages 460 and 461.)

*Case II.*—W. L., æt. 27, ship carpenter, married, admitted, under the care of Dr Davidson, November 17, 1874, with the usual symptoms of glycosuria, which had their commencement about nine months ago, when on a voyage to New Orleans. Since May he has done very little work, and has been occasionally under medical treatment.

He was an intemperate man till three years ago. He has never had any injury, and there is no history of disease of the nervous system in his family. His mother died of "cancer of the stomach," and a brother of phthisis.

*Present condition.*—He is troubled with general *malaise*, great thirst, dry mouth, dry and furred tongue, increased but not voracious appetite, and frequent micturition. His skin is dry and scurfy, temperature normal, face somewhat flushed, and some of his teeth are carious. He has been impotent since the disease began, and his bowels tend to be confined. He is considerably emaciated, weighs now only nine stones, and his muscles are soft and flabby, vision weak.

*Physical examination.*—The hepatic dulness is large, its vertical measurements being four inches in the line of sternum, and five inches in the nipple and axillary lines. Splenic dulness slightly enlarged. Heart and lungs normal.

He was put on ordinary hospital diet and ordered a *placebo*.

*November 26.*—His diet was increased on the 24th. He is now complaining of “cramping” pains in the abdomen, and dimness of vision. He drinks about eleven or twelve pints of fluid daily, and voids about 300 ounces of urine.

*November 28.*—He was put to-day on animal diet, with the addition of a pint of milk, with the result that his urine immediately diminished to less than one-half its former quantity.

*December 3.*—He is troubled with a feeling of fulness at the stomach, and habitual constipation, for which he was ordered a pill at night.

*December 19.*—His abdomen is still distended. He was now put on five minims of liq. strychnia thrice daily.

*December 23.*—He has been keeping to bed for the last four days for an eczematous condition of the right leg and foot, which to-day has almost disappeared. The skin of the extremities is very dry, scurfy, and slightly wrinkled; that of the body is not so dry. Tongue very parched, red, and grooved transversely. His appetite is very good, but there is no unnatural craving for food. He complains of great thirst, which is most urgent after dinner and during the night, and at these times he micturates more. He passes his urine in large quantities at a time, with a fair interval between the acts. He had an erection a few days ago, which was the first since last January. His mental condition is somewhat improved, and he is more cheerful, especially after being in the open air. His bowels are regulated by an occasional pill.

*January 1.*—He has been troubled for a few days with a small abscess at the upper part of right leg, which is opened to-day, and pus and blood evacuated.

*January 4.*—Wound progressing favourably. Skin much moister; but his tongue is very dry and greatly cracked in a longitudinal direction. He was now put on a grain and a half of codeia thrice daily.

*January 9.*—He has a slight cough, but no expectoration:

voice hoarse. Examination detects a few râles at the apices of the lungs.

*January 11.*—For the last two days he has been suffering from severe frontal headache, which he describes as “an aching continuous pain.” A mixture of bromide of potash is now substituted for the codeia.

*January 15.*—His lower extremities are slightly œdematous; abdomen very tympanitic.

*Physical examination.*—There is slight flattening of the infraclavicular spaces; deficient expansion of chest, the respiration being almost purely abdominal. The percussion is comparatively dull in the left clavicular and infraclavicular spaces, and in both supra spinous regions. Over these areas the breathing is tubular and the V. R. increased, but there are no râles. At the base of left lung there is slight dull percussion and a few crepitant râles. Over the rest of the lungs the breathing is rather harsh, but not otherwise abnormal.

The heart sounds are short and sharp, the first approaching the second in quality. There is a general tendency to venous congestion over the whole surface.

*March 22.*—There has been little alteration in the patient's general condition since last note until yesterday, when he began to suffer from slight attack of diarrhœa. Tongue dry; skin warm, face flushed.

*April 30.*—On the 17th inst. he was put on a strictly animal diet, since which time it will be seen that the quantity of urine and amount of sugar have considerably diminished. The last few days his appetite has greatly failed, so that no doubt the great diminution is in part due to the lessened ingesta. He has been restless at night, for which he has had twenty grains of bromide of potash; and he is now having ten grains of Boudault's pepsine thrice daily. To-day his pulse is 108; tongue dry and red; skin dry and scurfy. His body is much emaciated; chest very spare, but expands freely. The percussion is fair throughout, except at the apices, where there is slight tubular breathing, crepitus at left base, but otherwise the respira-

tory phenomena are tolerably fair. He has been confined to bed for a few days with swelling of the right knee.

*May 2.*—He is very prostrate. Pulse 100 weak; tongue dry, red, and glazed; skin dry and scurfy; appetite bad; thirst rather lessened. He complains of pain in the abdomen. His right knee is swollen; face wrinkled and puckered. Temperature about 98·0° F. Urine and sugar greatly diminished, no doubt in great part owing to the deficient ingesta. He is to have three ounces of whisky daily, and pil. phosphor. (gr.  $\frac{1}{25}$ ) *ter in die*.

*May 4.*—Breath and urine have a very strong odour. Bowels confined, for which he is to have a dose of oil; appetite bad. Ordered bran bread.

*May 5.*—The oil gave relief, and he is much better to-day.

*May 6.*—Rather better; pulse 93, weak; appetite improved, breath not smelling so badly, bowels open, urine rather increased. Ordered another dose of oil.

*May 12.*—There is an eczematous condition of his glans penis, for which he has a lead lotion.

*May 13.*—Of late there has been a marked improvement in his general condition, but it is to be regretted that this is not coincident with an abatement in the diabetic symptoms, but rather the contrary, there being an increase both in the relative and absolute amount of sugar excreted. Pulse 80, of fair strength; tongue moist, appetite good, bowels regular.

*May 19.*—Improved in general condition. There is still some œdema about the ankles and knees. Ordered a mixture of strychnia, iron, and phosphate of potash.

*May 25.*—Not so anæmic, and œdema almost gone. Pulse of fair strength, tongue moist and slightly furred, appetite good, bowels regular.

There was very little alteration in his general condition up to the beginning of July, when he passed from under my observation.

He died on October 18th, and Dr Craigmile has kindly furnished me with the notes of the post-mortem examination. Both lungs contained numerous nodules of caseous degeneration.

*Determinations of Sugar in the Urine of William L.—, by Roberts' ; Yeast Test ; and by Volumetric Analysis with Fehling's Copper Solution, etc. The examinations, etc., were made daily.*

DATE.	ROBERTS' TEST.				FEHLING'S TEST.		Weight.	Mean temperature.		Treatment.	Diet.	REMARKS.
	Mean volume of urine in fluid ounces.	Mean specific gravity of urine.	Mean amount of sugar in grains.	Mean volume of urine in cubic cents.	Mean amount of sugar in grammes.	8 A.M.		8 P.M.				
(Inclusive.)												
Nov. 20-28.	290	1037	10,257	...	...	126 lbs.	96.4	97.3	A placebo, and a purgative when required.	Full.		The amount of sugar at once fell to about one-third the former quantity.
Nov. 29-Dec. 3	118	1036	3409	3362	222.3	129 lbs.	98.8	98.7			<i>Diabetic Diet.</i> —	
Dec. 4-12.	219	1034	6341	6231	413.5	128 lbs.	99.0	99.0				The urine and sugar again rose, owing to the patient secretly making use of forbidden articles of diet.
Dec. 13-18.	151	1035	4226	4278	268.0	132 lbs.	98.5	98.6				He was now reprimanded and watched more closely, the result of which will be seen in the columns.
Dec. 19-31	160	1034	4527	4572	296.7	127 lbs.	99.1	98.8	Liq. Strychnia, m.s.v. for in die.			The effects of the Strychnia, Codeia, and Bromide are here apparently unfavourable, though it would probably be unfair to attribute the increase to these remedies.
1875.						...	98.2	99.1	Codeia, grs. iss. ter in die.			
Jan. 1-11.	159	1032	4752	4543	307.9	...	98.5	98.8	Polass Bromidi, grs. xx. ter in die.			
Jan. 12-25.	164	1032	4730	4664	306.6	132½ lbs.						



Jan. 26-Feb. 11.	159	1031	4446	4522	283.5	130 lbs.	98.5	98.4	Liq. Strychnia, m. s. v. ter in die.	Tea : 1 pint of tea; mutton chop; 4 oz. bran bread and butter.	The Strychnia and Quinine had a decidedly beneficial effect on the patient's general condition, and the volume of urine and amount of sugar slightly fell under their use.
Feb. 12-20.	146	1030	3978	4126	260.0	129 lbs.	98.8	98.6	Add Quinine Sulphat., grs. v. ter in die.	Three pints of unskimmed milk daily.	Edema of the legs, from which he had begun to suffer, was relieved.
Feb. 21-28.	139	1030	3835	...	...	130 lbs.	98.5	98.8	Add Liq. Strychnia (additional) m. s. bis. ter in die.		
Mar. 1-20.	151	1031	4100	4290	268.2	131 lbs.	98.5	98.9	Add other iiss. m. s. of Liq. Strych. ter in die.		
Mar. 21-31.	141	1033	3841	...	...	131 lbs.	99.2	98.6	"		
April 1-15.	147	1032	3905	...	...	130 lbs.	98.6	99.0	"		
April 16-27.	122	1032	2665	...	...	.....	98.6	99.0	Easton's Syrup, ʒi. ter in die, et Olei Morrhuæ, ʒss. bis in die.	Breakfast: bacon, 2 eggs, and coffee.	With the complete withdrawal of anylaceous food, the sugar still further diminished.
April 28-May 6.	118	1023	1420	...	...	.....	98.4	99.0	Easton's Syrup, ʒi. ter in die, et Ol. Morrhuæ, ʒi. ter in die, et Bourdault's Pepp. sine, grs. x. ter in die.	Dinner: meat or fish; green vegetables, and cheese.	This further decrease is, in great part, duo to loss of appetite, with lessened ingesta.
May 7-10.	119	1029	2707	...	...	.....	...	...	Tea: vegetables, bacon, cheese, and coffee.	May 1st, whiskey ʒ oz.	As the patient's general condition --especially the state of the digestive organs--improved, so the glycosuria and polyuria increased.
May 11-18.	123	1033	3528	...	...	.....	99.6	100.0	Et Pul. Phosphor. grs. ʒi. ter in die.		
May 19-June 4.	123	1032	3177	...	...	.....	98.0	...	Liq. Strych. m. s. x. Tinct. Ferri.		
June 5-14.	113	...	...	11th urea (24.5 grs.)	...	.....	...	...	Percidor, m. s. xv. Pot. Phos., grs. xv. ter in die.		
June 15-July 6.	106	1035	2978	...	...	.....	...	...	Stop the Pepp. sine.		The administration of phosphorus seemed to be accompanied by a rise in the temperature.
July 7-27.	93	...	...	...	...	.....	...	...			

tion. Heart pale and flabby. The liver is enlarged and congested, and throughout its substance are numerous minute abscesses, varying in size from a pin's head to a small pea; the smaller ones being whitish, the larger ones walled cavities filled with bile-stained pus. The kidneys large, somewhat congested; the capsules strip off readily. In the left one are several abscesses filled with cheesy pus; two of them about the size of a hazel nut, the rest smaller. The right, not so large as the left, also contains two abscesses, one the size of a pea, the other of a bean, with several smaller ones. There are two or three similar nodules in the spleen. There is considerable congestion in the lower part of the ileum, especially along the edges of the valvulæ conniventes, but no ulceration.

On opening the cranium, the meninges and upper surface of the brain appear normal. There is a considerable amount of fluid in the subarachnoid spaces. The lateral ventricles are distended with serum and the choroid plexuses engorged. The fourth ventricle is also enlarged. The ependyma seems to be thickened. On each side of the fourth ventricle, lying on the upper and posterior portion of each crus cerebelli, are curious vegetations resembling the choroid plexus, and adhering to the roof of the ventricle. They are rather elongated, and consist of small tubercular like vegetations. In structure, however, they correspond exactly with the villi of the choroid plexus, each villus being full of vessels and covered with a regular layer of spheroidal epithelium. Microscopic examination of the pons and medulla revealed many large perivascular spaces. (See Table, pages 466 and 467.)

(To be continued.)

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V.—CLINICAL OBSERVATIONS ON SYNOVIAL BURSÆ; WITH SPECIAL REFERENCE TO THOSE SITUATED IN THE POPLITEAL SPACE.

By WILLIAM MACEWEN, M.D., *Surgeon, Glasgow Royal Infirmary.*

WHILE acting as surgeon to the out-door department of the Western and Royal Infirmaries, a number of enlarged bursæ and effusions into the sheath of tendons came under

observation, the majority occurring in the ordinary situations and having the recognised appearances, while some were in unusual sites, others from their mode of origin threw light on the ætiology of such effusions, some presented interesting points of resemblance to other tumours, while by tracing the formation of the contents of a few, hints were obtained as to the development of the melon seed-like bodies found floating within these cavities.

It has been thought advisable to entitle the present paper "Synovial Bursæ," a term first used by Bécларd in describing bursæ in his *Anatomie Générale*, but which has been since employed by Brodie in a broader sense, "including membranes forming the sheaths of tendons which have the same structure, answer a similar purpose, and cannot with propriety be distinguished from other bursæ," and it is in this latter sense that it is used here. At the same time, the right is reserved of discriminating throughout the paper between bursæ and effusions into the sheaths of tendons, when occasion offers or requires. It is not intended to dwell on bursæ generally, but merely to note in what way my experience confirms, or diverges from, that of others. The common and well recognised forms are not taken up, except as illustrating some particular point, such as that of ætiology. Special attention is directed to the synovial bursæ found in the popliteal space, seven of the recorded cases being illustrative of the occurrence of these affections in this region. Instead of interweaving the remarks on each head along with the illustrative cases, the latter are given separately, and the observations on these are made toward the end of the paper. A word may be said here on a bursa not otherwise touched on in this paper. Dispensary surgeons are consulted by patients suffering from pain of a severe kind located in the plantar aspect of the ball of the great toe. At the outset most cases present little swelling or little appreciable physical appearance of any kind, but pain on pressure is always present, and indeed the pain produced by walking is the sole cause of the patient's appeal to the surgeon. Most

often the patient affected walks on the outside of his foot, so as to keep the weight of the body from the toe, and even when he puts down the whole foot, he lifts it like a stilt, never springing from the toes. Little can be elicited regarding history further than the fact of the patients having undergone extra walking and fatigue. Such cases were of very frequent occurrence in my dispensary practice, and they were of such a trivial nature, as far as physical appearance went, that they might have been set down without much attention had not the pain been so great as seriously to interfere with walking, and in some cases almost to render it impossible. Some of them were kept under observation for weeks and even months, and in at least two cases, where the patients were forced from their circumstances to walk, I detected at last fluctuation under the thick plantar integuments, and one of these was opened and gave vent to a thin, serous, transparent, colourless fluid. I have no doubt that the majority of these cases were instances of enlarged bursæ—enlarged through the constant friction and irritation of walking; and from their prominent position once they were enlarged they occasioned pain when the weight of the body was leant on them. For this painful and troublesome affection I know of nothing better than fomentations and rest.

I. *Bursa situated on outer border of popliteal space.*—At the Royal Infirmary Dispensary on May 5, 1875, a labourer, about 43 years of age, complained of a pain and stiffness in the movements of his right knee-joint. On examining, there was nothing apparently wrong with the joint itself, but a swelling was detected on the outside of the knee behind. He knew that it had been there for “some time,” but he had paid no attention to it, as it caused him no pain. He could only attribute excessive walking as the cause of the pain in the knee. He was not in robust health. This swelling was the size of a small walnut; it had thin walls, and was slightly fluctuant, when the limb was not fully stretched, but became elastic when the limb was fully extended. It was situated well to the outside of the popliteal region, just

above the head of the fibula, near the insertion of the biceps, the tendon of which seemed to be external to the tumour. The tissues were not red over this part. It was not painful to the touch, unless when very firm pressure was exercised on it. When the limb was flexed the tumour was slightly mobile, but when extended the tumour was firmly fixed. It was not reducible. It was diagnosed as the bursa situated between the tendon of the biceps and the external lateral ligament of the knee-joint.

A series of fly blisters, the size of a penny, were ordered to be applied; he was to have complete rest in bed, and his general health was attended to. In three weeks the pain and stiffness were completely removed, the tumour was reduced to about a third of its bulk, and the man feeling himself much better resumed work.

II. *Bursa on outer border of popliteal space.*—A labourer, about 50 years of age, complained of pain and stiffness in the left knee. The pain was of a dull character and indefinite seat; the patient stating that it did not involve the whole joint; at the same time he was not able to localise it. Nothing abnormal could be detected in the joint itself, but a swelling was found at the external part of the popliteal region. It was the size of a large walnut, well circumscribed, tense, though slightly elastic, and well bound down and fixed in its position. The skin was in no way adherent and not at all inflamed. On the knee being flexed the tensesness diminished, though the other characteristics remained much the same. This tumour also seemed to be placed partially behind the biceps, though the tendon was not felt moving over the surface of the swelling as in the last case. It was situated just above the head of the fibula. It was aspirated, and about one half ounce of pale-coloured fluid of the consistence of jelly was removed. Counter irritation was afterwards employed and rest; after which the pain and stiffness in the "knee" were removed, and the tumour had entirely disappeared.

The length of time in which the tumour existed could not be ascertained, seeing that the patient was not aware of its

presence until it was detected at the first examination in the dispensary.

III. On April 1, 1875, a ganglion having much the same situation as the preceding, but the effusion being in the interior of the sheath of the biceps, occurred in a little girl 3 years of age, its origin being attributed by her mother to a severe strain which she received a few days before. It was the size of a large hazel nut. Pressure between the finger and thumb burst the sac, dispelling the contents into the cellular tissue, after which there was no return of the ganglion.

IV. *Bursa in centre of popliteal space.*—William Mullen, a carpet weaver, aged 41 years, presented himself at the Glasgow Royal Infirmary Dispensary, on April 2, 1875, with a swelling at the back part of his left leg in the popliteal space, and complained of pain and stiffness in walking, with occasional shooting pains and cramps, extending down the limb. It was first observed three years previously, and from that time it enlarged slowly till three months ago, when it began to increase much more rapidly, and doubled its former size within these three months. He was in good health otherwise. He stated that his own surgeon told him that it was an aneurism, and that he was to get into the "house" to have it operated on.

The swelling was somewhat oval and lay obliquely in the popliteal space, its lower portion being fairly in the inside of the space, while the upper occupied the centre and extended above the condyles of the femur. The skin over it was not adherent, though it was slightly reddened. Measuring over the convexity of the tumour, its length vertically was five inches, and its breadth corresponding to the transverse position of the limb was three inches and a half. It was well defined and circumscribed. Its walls were thin and tense, but when the limb was flexed they became slightly elastic, and at the same time it was found that the bulk of the tumour diminished under pressure. When the limb was gently relaxed, though not flexed, and pressure was exercised on the tumour, a decrease in the size of the swelling took place, and on the inner side of the knee-joint

an accumulation of fluid was detected. The patella was in no way raised from the corresponding articular surface. While the patient remained still, after the fluid had been pressed out, the tumour preserved its reduced size, but after walking about for a little, it regained its original bulk. When it was reduced it became fluctuant, and the pulsations were reduced to a mere heaving. Before reducing its size the distensile pulsations were very distinct, though they were not quite so forcible as one would expect from an aneurism with such thin walls. These pulsations altered according to the position of the limb. There was also a bruit heard on auscultation. It appeared to be a bursa much enlarged, and projected from between the internal head of the gastrocnemius and the semi-membranosus. From its great bulk it is possible that both the bursa peculiar to the semi-membranosus and that common to the semi-membranosus and the internal head of the gastrocnemius had been united into one. Synovial hernia was put out of the question, as there was no appearance of articular disease, and no effusion except what could be pressed from the cyst. It was resolved to aspirate; and now comes an interesting point. The patient was placed on his back, the limb fully extended, and the aspiratory needle inserted in the cyst, when an involuntary exclamation escaped from the students who surrounded the couch, as they saw a rush of red-coloured fluid into the receiver, and the word "aneurism" was muttered. The stop-cock was for the moment shut off, when it was seen that the red fluid was not blood, but contained a large percentage of dark-coloured serum. The stop-cock was again turned on, and in a minute the cyst had completely subsided, and did not refill. The artery could then be distinctly felt pulsating in its usual situation. About four ounces of this fluid had been evacuated. It did not coagulate on standing. After it had stood some weeks a layer of reddish flocculent matter deposited, and left a transparent orange-coloured liquid above; the layer measuring an eighth of an inch in thickness, and the orange-coloured liquid about three inches.

The limb was afterwards firmly bandaged, and pressure was exercised on the popliteal space. It was afterwards blistered repeatedly, and though he was much improved and was able to go to work, yet the entire effusion was not removed.

The injection of iodine was proposed, as Velpeau recommends, but the man would not undergo this treatment, "as it would keep him too long off his work." He was recommended to become an indoor patient, but this he also refused.

V. *Bursa in centre of popliteal space.*—At the Royal Infirmary Surgical Dispensary, on March 30, 1875, a woman, about 50 years of age, sought advice for a pain in her left knee, which she had experienced for some months previously. She pointed to the fore part of her knee as the seat of pain, and in no way referred to the back of her leg. The knee-joint was not swollen; but in making the examination the fingers came in contact with a swelling in the popliteal space. This tumour occupied the greater part of the popliteal space, though situated rather more to the inner side of the limb. The skin over the tumour was not adherent, though somewhat stretched. The tumour was firmly fixed. It was about the size and shape of an orange, and was well defined and circumscribed. Both its transverse and longitudinal measurement (over its convexity) were about four inches. It was tense and firm to the feeling, and had distinct eccentric pulsations. Though the pulsation was always distensile, yet the degree of distensibility varied according to the position of the limb, being most marked when the limb was put fully on the stretch, and when the patient lay in bed on her face; and least marked when she placed the heel on a chair and slightly flexed the limb. In the upright position, when patient stood, it was also little marked, though still distensile. On stethoscopic examination there was a bruit, but it seemed distant to the ear. The tumour did not lessen much on arresting the circulation at the femoral and on pressure of the cyst. But the most distinct point in its differential diagnosis lay in the



fact that though the pulsations were distensile, still they were not delivered with such force as they would have been in an aneurism having such thin walls.

As the walls of this swelling dipped under the semi-membranosus, it was diagnosed as the bursa between that muscle and the internal head of the gastrocnemius. It was aspirated, and between three and a half and four ounces of a pale yellowish inspissated serum escaped, which had the apple-jelly-like appearance spoken of by the French writers on bursa. It was afterwards bandaged and pressure applied to the popliteal region, and the patient was to take rest. She had no appearance of swelling in the space, a fortnight after and the pains in the knee had disappeared.

VI. *Enlarged bursa in popliteal space (right) near centre.*—A lad, about 15 years, was admitted on July 21, 1876, into Ward 21 of the Royal Infirmary, with a swelling in the right popliteal space. He stated that about eleven days previously he had felt a stiffness in his knee-joint, and four days after that he found for the first time a swelling in the right popliteal space. It was not painful, but the stiffness still remained in the knee. He continued at work for three days after he first detected the swelling, but he was afterwards sent to the Royal Infirmary by a surgeon. On admission he was able to walk without much inconvenience, the stiffness in the knee having lessened. The swelling occupied the centre of the popliteal space, and extended more to the inner side. It measured three and a half inches across its convexity. The skin was freely moveable over the tumour, which seemed to have thin walls, and lay immediately beneath the skin. When the limb was fully extended the tumour was elastic, but when the limb was flexed the swelling became softer and almost fluctuant. There was a distensile pulsation when the limb was extended, but it was feeble and not distinctly distensile when the limb was flexed. There was also a slight bruit heard on stethoscopic examination. There were no inflammatory indications about the part.

On July 23, it was aspirated, and about an ounce and a

half of pale, translucent, gelatinous fluid of the consistence of honey, and resembling in colour the albuminous portion of an egg, was removed. A bandage was afterwards applied, so as to exercise pressure on the part, and he was kept in bed for some days.

There was no return of the effusion up till the time he was dismissed, July 31, though for four days previous to his dismissal he had been walking about outside.

It was further ascertained, about three months after, that he had been at work regularly from the time of his dismissal and felt well, suffering no inconvenience from the limb.

VII. *Bursa on inner aspect of popliteal region.*—A porter, aged 29 years, came to the out-door surgical department of the Royal Infirmary on 9th April, 1876, suffering from a tumour on the inside and lower border of the popliteal space. He was accustomed to carry heavy weights, but he could not tell of any particular occasion as having produced the swelling. The tumour had existed for six months prior to his appearance at the Infirmary, and for some time before he detected the swelling he had experienced pains and stiffness in the joint. The tumour was circular, measured two inches in diameter across its convexity, and was very tense, firm, and slightly mobile. It was diagnosed to be the bursa proper to the tendon of the semi-membranosus, and situated between the tuberosity of the femur and that muscle.

Pressure and afterwards counter irritation were employed, and on April 26 it was very much reduced, so much so that it could scarcely be detected. It had rapidly changed its character to a soft, fluctuant tumour, after the application of the first two blisters. The pain and stiffness were entirely removed, and he was able to go again to his work.

VIII. *Bursa between the gluteus medius and trochanter, containing large quantities of "rice-like bodies."*—While surgeon to the out-door department of the Western Infirmary in the summer of 1874, a man presented himself at the Dispensary with a large and inflamed tumour on the outside of the right hip. He was about 45 years of age, stout, and well built, and stated that he felt in good health generally.

Two years previously, while engaged on board ship, he was kicked several times on the right hip, after which the hip swelled, became red and so painful that he had to keep bed. When he arrived in New York he was admitted to one of the hospitals, where an opening was made into the swelling, from which a large amount of dark-coloured matter like blood escaped. It soon afterwards healed, and he was dismissed. On the return voyage he detected a slight reappearance of the swelling, and it continued to enlarge slowly. For about a year prior to my seeing him he had kept a coal depot, and was in the habit of carrying his coals, when sold, to considerable distances. The day before he presented himself he was in the act of carrying a bag of coals up a stair, when he felt something giving way at his hip and a feeling of fluid trickling down his leg. When he had deposited his load, he found his boot and a considerable portion of the three-storeyed stair strewn with something like rice.

The swelling was of a circular form, fully five inches in diameter, its axis corresponding to a point situated two inches from the trochanter major of the right femur. The surface was red and painful to touch. It was fluctuant, and at times a grating, soft, crepitating feeling was detected. An inch below the centre the trace of a recent opening existed, which, however, was occluded. A free incision was made into the swelling, exit being given thereby to a considerable quantity of pale straw-coloured serum, and over four ounces of "rice-like bodies," in shape such as are occasionally found in bursæ of the wrist, but in size much larger. There were also found interspersed here and there a few bands about the size of four or five of the "rice-like bodies" placed in line, and which were of the same material and consistence. The cavity was found to be the bursa between the gluteus medius and the trochanter major, in a greatly distended and inflamed condition.

After the whole of the contents were removed, the cavity was well washed out by injecting a strong solution of carbolic acid to act as an irritant in the first instance, and thus

set up inflammatory action sufficient to bring about coalescence of the walls and obliterations of the cavity; and in the second place to act as an antiseptic. He was advised to take complete rest. Serum continued to ooze in gradually decreasing quantity during the first seven or eight days. Pressure was afterwards resorted to. At the end of a fortnight the aperture was closed, and all active inflammation had ceased. In three weeks he resumed his work.

IX. *Case of ganglion on dorsal aspect of foot—"rice-like bodies" in process of formation.*—A girl, aged 19 years, was admitted into the wards of the Royal Infirmary, having a painful swelling on the dorsum of the right foot, toward its outer side. The swelling was divided into an upper and a lower part by a broad constriction, and on pressure being exercised on one of these parts, the other became tense, showing that there was a communication from the one part to the other. The swelling was distinctly fluctuant, and while being passed from the one part to the other under the constriction, a feeling of soft friction was experienced, as if gelatinous bodies were rubbing against the constricted part. This sensation was somewhat similar to that which is experienced by the passage of rice-like bodies under the annular ligament of the wrist, but much softer and more velvety. This was diagnosed to be an effusion into the sheath of the extensor communis digitorum tendon as it passes under the anterior part of the annular ligament. As the pain experienced was great, a puncture was made in the lower sac, under antiseptic precaution, when there escaped a quantity of small bands and nodules the size of barley grains, which floated loosely in a straw-coloured serum. These bands and nodules were composed of coagulated lymph of the consistence of jelly.

The part was afterwards treated by compression, and in two weeks she was dismissed well.

X. *Case illustrative of the rapidity of formation, and the origin of some ganglia.*—In February, 1875, a young lady, on stepping out of a tramway car, slipped and fell on the back of her right hand, which doubled under her. Twenty

minutes afterwards there was a swelling found on the back of her wrist, which to her had the feeling and appearance of a *bone*. She, and some of her relatives who were with her, were positive that there was no swelling of any kind on the back of her wrist before she fell. An hour after the accident I was asked to see her, and found a well circumscribed ganglion situated over one of the extensor tendons (probably index) at wrist.

By digital pressure it was dispelled, and a bandage for a short time afterwards completely removed it.

XI. *Ganglion in each wrist of a woman—origin traced. "Rice-like" bodies in process of development.*—An unmarried woman, about 27 years of age, of delicate build, but seemingly in fair general health, presented herself at the Royal Infirmary, out-door department, with a swelling over the palmar aspect of each wrist. She was a mill-worker, and four months previous to the day on which she sought advice, she had gone to Paisley to work. The mill work in Paisley, she stated, was not heavier than what she had been accustomed to in Glasgow, but she had to carry the water for the household from a considerable distance. She did so by bringing the water in a pair of ordinary pails. After carrying the water for several days, she felt her wrists becoming sore, and gradually a swelling appeared in both. The swellings increased and were painful on exercise.

These swellings extended in both cases under the annular ligament of the wrist into the palm of the hand, and as the fluid was forced under the ligament, a distinct friction was felt by the fingers, resembling Dupuytren's description of the friction of half-boiled grains of rice. They were very evidently the ordinary rice-like bodies found in similar affections of this region.

She was to have returned the next day to have them removed, but as she did not do so on that day, and I afterwards was appointed surgeon to the wards, I did not see her again.

The origin of this affection seems clearly traceable to the carrying of the water.

XII. *Diffuse synovial bursæ occurring in the sheaths of extensor tendons—two cases of double bursæ, (one on each hand,)—origin of one traced.*—Two cases of the diffuse soft bursæ, which occur in the sheaths of the extensor tendons of the hands may be mentioned here. They are much more difficult to deal with than the ordinary firm tense ganglia so often found in this situation. One of them occurred in a private patient, a rather delicate-looking lad, 9 years, who had joined a gymnasium, and about two weeks after he found swellings at the backs of both hands. They occupied a space which might be covered by a half-crown piece, and on pressure, one half of the cavity could be emptied, while the walls of the other half became tense.

The other instance occurred in a strong young joiner, 21 years, who believed that he had over exerted himself about two months prior to his coming to the dispensary. They appeared on the dorsum of both hands, were of the size of crown pieces, though irregular in outline.

Blisters and pressure were long continued in both cases. In the boy's case the swellings were greatly reduced. In the man's case this treatment failed, and setons had to be introduced, which, along with pressure, obliterated the cavities.

XIII. *Bursæ on dorsal aspect of phalangeal articulations.*—One very striking instance of bursæ, affecting the phalangeal articulations, was seen at the Royal Infirmary dispensary. It occurred in a sewing machine girl, about 19 years of age, of slight build, but of healthy appearance. They had commenced to grow some years prior to the time of my examination, and she stated that they impeded the free movement of her fingers. They affected the dorsal aspect of all the phalangeal articulations of both hands, but the index and little finger of the left hand had the largest bursæ. They were hard over the surface, and two of them felt fluctuant. The thumbs were free. She was recommended rest from work and as she could only obtain rest by becoming an inside patient of one of the hospitals, she was lost sight of. They did not present the appearance of rheumatic affection of the joints, and there was no rheumatic history.

This case resembles those spoken of by Schreger, and figured in his work on *Bursae Mucosae*.\*

XIV. *Bursa over patella, size of small orange, with very thick walls*.—A woman, about 40 years, showed herself at the Royal Infirmary Dispensary, with a tumour in front of the patella. It was the size of a small orange, and had very thick walls, if indeed it were not altogether solid. There was no redness, the skin was not adherent, and there was complete immunity from pain, the only reason she sought surgical aid, was on account of the annoyance occasioned when she knelt, which she had to do in her employment. She stated that it had existed for a good many years, that it was at first quite soft, and she was told then that it was "housemaid's knee," and it was to have been opened, but she would not allow it to be done.

She was advised to go into the ward to have it removed.

This case resembles one noted by Brodie, which was removed by him, when he found the parietes to be half-an-inch thick, while the interior contained serous fluid. A similar firm tumour has likewise been noted in this situation by some of the French surgeons.

XV. *Synovial bursa, coraco-brachialis*.—One case of enlarged bursa over the shoulder-joint, presented itself in the person of a carter, about 19 years, who attributed its appearance to excessive use of the left arm in lifting and carrying heavy weights. It corresponded in position to the situation of the bursa, figured and described anatomically by A. S. D. Synnestredt, of Christiana, † as the *bursa mucosa coraco-brachialis*. It was distinctly fluctuant, and the patient experienced a dull feeling of pain on pressure. It was punctured antiseptically, when about three-quarters of an ounce of colourless serous fluid escaped. Afterwards blisters and rest caused the remaining swelling to disappear, and he resumed his work in about a fortnight.

\* *De Bursis Mucosis Subcutaneis*, 1825. Bernhardus Gottlob Schreger. Plate II.

† *Bursæ Mucosæ*. A. S. D. Synnestredt, and Dr J. Voss, Christiana, 1869. Plate I., fig. b-6.

Synovial bursae occur in many different regions, some having their position established anatomically, while others are purely pathological productions. The former are sometimes termed normal, while the latter are called accidental. Padiou, in a *thèse* on this subject, enumerates twenty-five normal serous bursae, and nineteen accidental bursae; but, as Nélaton says, it would be easy to multiply the sites of accidental bursae. This might be all the more easy, in fact they might be indefinitely multiplied, if Velpeau's statement be regarded as correct, that bursae have no distinct wall of their own, which can be separated and dissected out without tearing or injuring the neighbouring structures. For this reason, Velpeau objects to the name *bursae* or *synovial membrane*, as applied to these affections, and thinks they should be entitled "closed cavities," or "synovial cavities." That is to say, that while closed cavities exist in which serous fluid is regularly found, (outside of joints,) that individual conformation or personal occupation may develop a "synovial cavity" in almost any region of the body; such as between the integuments and the subjacent tissues.

Aston Key mentions what he thought was a distinguishing point between ganglia and bursae, namely, the consistence of the fluid secreted. Ganglia, he held, always contained a fluid, of the consistence of a jelly, while bursae contained a thin serous fluid. Though I have found this often correct, it does not hold good in every case, as I have found ganglia with thin serous fluid in their interior, whereas, the consistence of the matter contained in two of the bursae, noted as occurring in the centre of the popliteal space, resembled apple jelly. So that there can be no dependence placed on this point of diagnosis; nor is it, in fact, a matter of any great moment.

Though the aetiology of these ganglia is generally understood, yet this is derived more from what is inferred than from actual observation. Thus Syme,\* speaking of ganglia, says, "it is generally referred to over exertion, but there is

\* Syme, p. 284, Principles of Surgery.



nothing certainly known as to the cause of its production." This is so far correct. Over exertion, especially if it be of a kind to which the muscles have not been habituated, or any sudden strain, seems sufficient to induce the effusion into the sheaths of tendons, and the latter cause may also overstretch the sheath. The case mentioned at No. X., in which a lady fell on the back of her hand, putting the extensor tendons violently on the stretch, produced in one of the sheaths of the extensor tendons a well marked ganglion within an hour of the accident. The mill girl mentioned in Case No. XI., while engaged for some weeks carrying a weight in both hands, to which she had not been previously accustomed, had soon to desist, and change her place of residence, in order to get rid of the burden of carrying water, as her wrists were swollen in their palmar aspects, and two well marked ganglia, containing "rice-like" bodies, were found. Then again, the boy who went to the gymnasium, and enthusiastically commenced his exercises, soon had to desist from the formation of diffuse ganglia on the dorsum of both hands. These three facts confirm the supposed idea; and though none of the other cases are so pointed, yet some of them have shown themselves in people whose occupations predisposed them to sudden or over-exertion. It is clear that bursae must in the same way be developed. M. Foucher's monogram, on popliteal cysts, points also in the same direction, as he considers that repeated and violent movements develop an irritation which induces over secretions in these synovial bursae. But not only does it do so in seats where there are bursae anatomically, but we find that such movements long continued, or prolonged pressure alone, give rise to pathological or accidental bursae, such as Velpeau has observed in one *sur la face antérieure de la cuisse chez un joueur d'orgue*.

A very close resemblance will be found between the bursal enlargement situated between the right trochanter major and the gluteus medius, and the bursa situated between the gluteus major and the ischium described by M. Cloquet, and in which he found

several thousand rice-like or melon seed-like particles. It would be quite safe to reckon the number of melon seed-like bodies by the thousand in this instance also, as the patient's own statement, to the effect that they were strewn like grains of rice in a track all down a stair of three storeys, which he had ascended, was supported by the large number evacuated at the dispensary, where all the students had an opportunity of securing specimens, and about four ounces by measure remained. Brodie speaks of a bursal tumour protruding from under the edge of the gluteus maximus, containing nearly two pints of serum. He watched it for some years, and gradually masses of solid matter were deposited in it, which gave it in parts an almost cartilaginous consistence. These bodies are often described as yellow in colour, but in the instance quoted, and in two other instances which came under my notice, (one under Dr Buchanan, Professor of Clinical Surgery,) they were white, almost pearly white. As to their pathology, it is curious to find Dupuytren classifying cysts containing them under hydatids. In his *Leçons Orales*, in an article entitled, *Des kystes Séreux contenant des petits corps blancs appelés kystes hydatiques*,\* he gives an account of a patient who was under his charge at the *Hôtel Dieu* in 1813, and who had a cyst under the annular ligament of the wrist, and which contained little white bodies, each forming a pouch, with one end terminating in a cul-de-sac, the other being drawn out like the neck of a bottle, and presenting a sucker at its extremity, and he believed that he saw movements in several of these bodies. M. Nèlaton states that Dupuytren's view has received some support by the statement of M. Raspail, to the effect that he had discovered in these little bodies, not only a mouth, but also a portion of intestinal tube. Dupuytren sent one of his patients to M. Bosc, the naturalist, who examined these white bodies just as they issued from the cyst, but he failed to discover anything like a mouth or suckers; and both M. Bosc and Duméril, who also examined them, denied that

\* *Leçons Orales de Clinique Chirurgicale*, 1833, Tome Troisième, P. 27.

they presented anything which justified the idea that they were hydatids. Brodie believed them to arise when the inflammation was of long standing, and to originate in the coagulated lymph, effused at an early stage of the disease. Velpeau looked on them as originating in fibrinous nuclei, and regarded them as only arising where bloody effusions had taken place. Erichsen describes them as being a fibrous or fibroplastic structure, and apparently consisting of portions of disintegrated lymph; and similar bodies found in ganglia he believes to consist of imperfectly developed granulations, probably thrown from the inner wall of the vascular sheath, and sometimes the remains of a blood-vessel may be seen in them. There are two cases mentioned in the present paper which have a bearing on this point. The bursa which was found between the gluteus medius and the great trochanter, was one which had been in a long standing state of inflammation, and as far as this goes would satisfy Brodie's first requirement for the formation of these bodies; but it had been evacuated by the surgeon who saw him first, and therefore we may conclude that the lymph effused *at an early stage* of the disease, had for the most part at least been discharged, and any quantity that remained could not have been sufficient to have occasioned such an enormous mass of these rice-like bodies contained in the cyst. Velpeau's requirement of a sanguinolent effusion was here supplied in the first place at least, for, according to the patient's statement, a bloody fluid escaped from the tumour when first opened in America. But lymph is very often effused after the bloody discharge has nearly stopped, and from the great bulk of the cyst being filled with these bodies, and the fact that there were besides many masses, and some long ribbon-like portions scattered here and there among the rice-like bodies, it would tend to show that whatever might be the material of which they were composed, that it at least filled the cyst almost entirely, and that these masses and riband-like portions had not yet been sufficiently moved about to have become broken up into the smaller rice-like forms. The theory that con-

forms most to these two facts, is that of their origin in coagulated lymph. One can scarcely conceive a sufficient number of "imperfectly developed granulations" to be thrown off to fill and pack the whole cavity. The second case, that of the girl who presented herself with a cyst in connection with the extensor tendon of the foot, situated on the dorsum under the annular ligament, was only of two weeks' duration before it was seen by me, when it was found to contain in an early stage these same rice-like bodies, soft and gelatinous, and having the appearance of coagulated lymph. But here we have an exception to one of Brodie's requirements, that of long-continued inflammatory action, the whole course of the disease, previous to their formation, not being over two weeks. M. Velpeau's sanguinolent effusion is in no way supported by this instance, as the fluid in which they floated was very clear, and contained no traces of blood clot, and they had no appearance of imperfectly developed granulations. This, however, is a question which can only be determined by the study of a considerable number of such cases, and it is quite likely that there may be several ways in which they may have origin. Portions of lymph, either coagulated or disintegrated, could sufficiently account for their appearance in both these cases, and the history would tend to regard that as the most likely origin. At the same time, in such a case as the first, it is possible that they might have developed from fibrin, or at least have had a fibrinous nucleus.

From the reported cases in this paper, it will be seen that seven synovial bursæ of the popliteal region have come under observation. From the clinical records of Chassaignac, Malgaigne, M. H. Larrey, Nélaton, and Velpeau, nineteen cases of popliteal cysts have been collected by M. Foucher, who was prosector to the Faculty of Medicine, Paris. These were published by the various observers in different periodicals, the "*Gazette des Hôpitaux*," "*Moniteur de Hôpitaux*," "*Revue Medico-Chirurgicale*," and in the thesis of M. Baudoin.\* Besides these nineteen cases, M. Foucher

\* Baudoin Thésis de Paris. 1855. No. 222.

found in the dead subject eleven instances of synovial bursæ. He recognises three kinds of synovial cysts which may be found in the popliteal region, those connected with the tendons of the muscles either as bursæ or ganglia, those arising from a synovial follicle, and those formed by a synovial hernia, which, however, he has not been able to demonstrate. Of the seven cases reported in this paper, it is not always possible to differentiate between the effusions into the sheaths of tendons and the bursæ encircling the insertion of the tendons. The greater number, however, were bursæ, one of which communicated with the joint. From the anatomical researches of M. Foucher, the popliteal bursæ are divided into external and internal, according to their position in the popliteal space. He also states that they are all confined to the inferior triangle of the popliteal lozenge; that is to say, they are all found under a line drawn across the posterior prominences of the condyles. Some of the observations in the present paper show that this is not always the case, as they, in two instances at least, extended above that line. The median, he does not mention at first, though two instances of the median cyst occur in his collected clinical cases. The bursa between the semi-membranosus and the internal head of the gastrocnemius is the one most often found to be enlarged, as in M. Foucher's nineteen cases, twelve were enlargements of this bursa. The three cases mentioned here as occupying the centre and inner side of the space were evidently enlargements of this bursa.

As to the diagnosis between hernial synovial protrusions and effusions into the sheaths of the tendons, M. J. Cloquet indicates that when pressure is exercised on the tumour, gradually but firmly, if it be a synovial hernia it will disappear, but the effusion into the sheaths of the tendons will remain unaltered. It is admitted that the hernial synovial protrusions will disappear on pressure, but it is also a fact that certain bursæ comport themselves similarly under pressure, and therefore errors might arise. It happens that the synovia of the articulation sometimes escapes through

a rent in the synovial walls, and that the synovia accumulates in supplemental pouches. Admitting that this occurs in a knee joint which does not present appearances of disease, not to say advanced disease, as in such a case, a protrusion might be looked for, then it would be erroneous to conclude that the mere disappearance of the fluid under pressure was a positive indication of a synovial hernia. For it is well known that bursæ having a connection with the joint by an opening, probably produced by friction, may empty themselves on pressure into the knee-joint. And it is quite possible that M. Cloquet, who states that he has met with more than one example of synovial hernia diagnosed by this means, may have mistaken a synovial bursa, having a communication with the joint, for a hernia. In an instance found on the dead subject, M. Foucher discovered that a bursa protruding between the semi-membranosus and the internal head of the gastrocnemius had an opening of a centimetre in length at the front border toward the knee, and that when the limb was straight, pressure on this bursa did not allow a single drop of fluid to escape, as the walls were then distended, and the superior border of the slit covered the inferior, and the posterior border of the internal condyle applied itself exactly on the capsule. On flexion of the knee the capsule became relaxed, quitted the condyle, and then the fluid escaped into the knee-joint. M. Foucher found in the limb, on the other side of the body, a similar valved opening situated near the same part, and which acted similarly in extension and flexion. Moreover, water when injected into the bursal sac behaved itself in like manner when the knee was flexed or extended. M. Foucher, in his examination of dead bodies having tumours in this region, never found a hernia from the articular synovia. Brodie states that these distended bursæ in many cases exist in combination with inflammation of the synovial membrane of the knee, but while he mentions the fact of a communication existing between the bursæ and the synovial membrane he does not speak of a hernial synovial protrusion, which is all the more significant, seeing that he

seems to have had considerable experience of bursæ in this region.\*

The language used by M. Velpeau is ambiguous on this point. He states that it is necessary to distinguish two kinds of synovial tumours occurring in the popliteal space, the one which belongs to tendons alone, the other which communicates with the capsule of the knee-joint.† As it stands the words are distinct; they do not say, the other, which forms part of the synovia of the joint, protruded as a hernia, but merely, that these bursæ *communicate* with the joint. But from the context it appears as if Velpeau thought of these other cysts as forming part of the synovial protrusion of the knee-joint. At the same time it is evident that Velpeau had no opportunity of being positive as to the existence of a synovial hernia by dissection, from the absence of any mention of it, and from the fact that he states that the diagnosis of those two kinds of tumours is not easy during life.‡ As M. Cloquet had only similar means of satisfying himself as to the existence of a synovial hernia, and as he does not differentiate it from a bursa having a communication with the joint, and as Velpeau and Brodie did not meet with one in the living subject that was fully established, and M. Foucher did not find any on the dead body, it is probable that M. Cloquet's cases of hernial synovial protrusions were bursæ, having communications with the articular synovial cavity.

It will be observed that in the three cases, IV., V., and VI. pulsations were distinctly perceptible in these bursæ, and it is therefore necessary to distinguish these bursal enlargements from aneurism of the popliteal artery. Many of our

\* Speaking of bursæ in popliteal space, "In many instances in combination with the synovial membrane of the knee; and as the cavity of the bursæ in some instances communicates with that of the joint, the extension of the disease from one part to the other is easily explained."—(Brodie. Diseases of Joints. Page 381.)

† Recherches sur les cavités closes, Art. IV., Tumeurs humorales tendineuses du jarret.—(Velpeau.)

‡ It is noted by M. Foucher that Velpeau stated to him that he had seen clinically what he believed to have been a hernial protrusion.—(M. Foucher. Kystes Poplités. Page 321.)

surgical works pass the matter over in silence, as, indeed, most of them do the whole subject of the existence of bursæ in this particular region. The writers in Holmes' system, however, refer to the matter, stating that a bursal enlargement, *usually that of the biceps*, appears as a pulsating tumour in the ham, and they conclude it is, however, too little like an aneurism to be mistaken for one by a careful observer.\* Now, the bursæ occurring in connection with the insertion of the biceps tendon are situated just at the head of the fibula. And even if they were considerably enlarged it would be unlikely that they would be so much over the popliteal artery as to have its pulsation communicated to it. The largest bursæ given in the present paper, as appearing on the outer border of the popliteal space, is described as about the size of a walnut, and it had no pulsation, and did not lie in a position to receive any. It lay just above the fibula, its lower border touching the head of the fibula. M. Foucher states that the cysts occupying the synovia of the biceps tendon immediately surmount the head of the fibula, and he cites an example of this from the *thésis* of M. Baudoin, so that it is unlikely that a bursa connected with the insertion of the biceps would communicate an impulse from the popliteal vessels. But it is quite another matter when bursæ, having a localisation much nearer to the popliteal vessels, are brought into consideration.

Erichsen, under the heading of Bursæ diagnosed from Popliteal Aneurism, states that bursal tumours may be distinguished, among other points, by their mobility and want of pulsation.† Though this held partly true as to mobility, and wholly true as to pulsation in reference to the bursæ,

\* "One of the bursæ of the hamstring muscles (usually that of the biceps) occasionally enlarges, and appears in the ham as a pulsating tumour, often of a considerable size: it is, however, too little like an aneurism to be mistaken for one by a careful observer."—(Holmes' System of Surgery.)

† "I have never found any great difficulty in distinguishing their true nature, their elasticity, and roundness, together with their mobility and want of pulsation, being sufficiently indicative of their true character."—(Erichsen. Science and Art Surgery. 1864. Pages 671 and 672.)



which were distinctly situated at the inner and outer borders of the popliteal space, it did not do so to those that were localized at the inner and central portion of the space. They were not mobile, and they did pulsate. M. Foucher goes further,\* as he, under *symptômes*, states that the bursæ of the popliteal space are little or not at all mobile. The degree of mobility will alter according to the position of the limb, except for those bursæ which protrude between the internal head of the gastrocnemius and the semi-membranosus, which when merely enlarged are quite immobile. M. Foucher, on the other hand, does not endorse the fact that pulsations are communicated to these bursal cysts, although he admits the theoretical possibility of such a sign being present.† And again, in speaking of the diagnosis, he states that even were pulsations present the surgeon could not mistake it for an aneurism, if he bore in mind that an aneurism imparted a feeling of distensile pulsation instead of mere elevations occurring synchronously with the pulse.‡ But though M. Foucher did not happen to find in the cases which he collected a bursa which conveyed the pulsations from the artery, yet he describes the outer border of the bursa common to the semi-membranosus, and the internal head of the gastrocnemius, as being only one centimetre from the popliteal artery; and it would take no great stretch of imagination to conceive the probability of the bursa enlarging so as to occupy this centimetre, more especially as the situation of the artery is the direction in which such a bursa would find most room to extend. This, however, is put beyond doubt by the record of the cases in this paper.

The pulsation was not only felt distinctly, but it was

\* Foucher—*Archives Générales de Médecine*, pages 427 and 428.

† “Enfin notons”——“et que nous n'avons pas rencontré dans celles-ci de battements communiqués par l'artère voisine. Ce symptôme, dont on a admis la possibilité peut-être théoriquement, devra en tous cas être considéré comme fort rare, si l'on se rappelle les rapports des diverses synoviales tendineuses avec l'artère poplitée.”—Page 430, Op. Cit.

‡ Page 435 Op. Cit.

distensile and eccentric, the bursa lying fairly over the popliteal artery. In case V. that eccentric pulsation was most marked, but in case IV. it was also distinct. Case VI. did not present at first any marked pulsation, but after having been kept under observation for about a week it was felt at the end of that time to have become distensile, as the tumour had increased in size. Not only so, but stethoscopic examination revealed a bruit in each case, most marked, however, in cases V. and VI.

Here, then, are three tumours occupying the centre of the popliteal space, and extending toward the inside of the popliteal region more than to the external margin, which are non-mobile, impart a distensile pulsation, and in which an arterial bruit is heard.

The position of the limb makes a marked difference on the appearance of popliteal synovial bursæ. This has also been noted by Brodie and by Foucher. When the limb is extended the tumour is tense and stands well out, and when the limb is flexed it disappears in great part. But Foucher also adds, and this is an important part, when the limb is fully distended the tumour may not be fluctuant, and yet when the limb is flexed the tumour becomes soft and fluctuant. And I would proceed a step further and say, that with those tumours which pulsate the pulsations are felt most distinctly when the limb is fully extended, and especially so when the patient is in the recumbent position. On the other hand, when the limb is flexed, *even slightly*, the pulsations are often markedly diminished, and in some cases the pulsations disappear. This is a very important point in the diagnosis of bursæ from aneurism of the popliteal artery. The pulsations of the latter no doubt are lessened by a great degree of pressure, such as from complete flexion, but they are not perceptibly altered by flexing the limb very slightly.

The pulsations in these tumours, though distensile, were not so strong or so great as would be expected in an aneurism having such thin walls. This was one point more than the others which caused me to diagnose them as cysts. Then again, when pressure was made on the femoral artery

they did not diminish in bulk, and by the addition of pressure two remained the same, while the third diminished, but this was afterwards found to depend on its communication with the joint.

In the instance of the synovial bursa which emptied itself into the joint, the colour of the contained fluid was very dark, and it may be asked whether it did not pertain to a fungus growth in a synovial cavity, such as is spoken of by the French. In such a case the synovial sac inflames, and the inflammatory action destroys the walls and serous cavity, and the tendons are completely enveloped in granulations. Nélaton states that they can only be distinguished from ordinary synovial bursæ by puncture—the trocar emptying a more or less thick serous fluid from the simple bursa, while it evacuates blood and thick particles from the other. The fluid emptied from case IV., though red, did not contain blood, and it did not coagulate, even after having been kept for over a week; and there were no solid particles removed, though these latter might have been prevented from passing through the aspiratory canula, which had a very small bore. Were it diagnosed as one of the *fongosités des coulisses synoviales* it would account for its being in communication with the knee-joint, as the same inflammatory action, which caused the destruction of the synovial cavity, might have occasioned the aperture through the articular synovial membrane. It is not likely that it was a hernial protrusion, as the fluid would not be expected to be red if it were so, and, besides, though it could be emptied it was only partial, while the knee-joint, though receiving the emptied fluid, was not distended more than a very little, the patella not being raised, and there was no appearance of articular disease. The long duration of this case, and its obstinacy, make it appear to belong to something more serious than simple bursa, and the fungus synovial cyst might suit the character best. On the whole, whatever may have been the cause of the red colour of the fluid, there are no grounds for believing that this was an articular synovial hernia, but a bursa; probably the bursa of the semi-membranosus, and

the one common to the internal head of the gastrocnemius and semi-membranosus conjoined.

In testing whether a cyst empties itself into the knee-joint or not, it must be remembered that Foucher found two bursæ communicating with the joint, but which only evacuated themselves when the limb was flexed, owing to a valved opening; and again, the mere hiding of the tumour when the limb is firmly flexed must not be taken for its evacuation into the joint.

One fact worthy of notice is, that nearly all the patients came to me complaining of their knee-joint being *stiff* and painful; and while some of them pointed directly to the tumour, most of them did not know of its existence, while others had their attention drawn only to the existence of a tumour by a neighbour. Yet this symptom of stiffness and pain in the knee was removed in nearly all the cases treated, showing that it depended on the synovial bursa being enlarged and impeding the free movements of the joints. M. Foucher has also been struck with this fact noted in many of his collected cases.

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Bursæ mucosæ. A. S. D. Synnestvedt ved Dr J. Voss, Professor i Anatomie, Christiania.

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## VI.—CASE OF ABORTION IN ENTERIC FEVER.

By JOHN SERVICE, M.B.,

*Assistant Medical Officer, City of Glasgow Fever Hospital, Belvedere.*

SPEAKING of the complications and sequelæ of enteric fever, Murchison remarks (p. 580, Ed. II.) that "According to Rokitansky and Niemeyer, pregnancy confers almost entire immunity from enteric fever; but the correctness of this opinion has been denied by Forget, Jenner, Griesinger, &c., and I have met with many instances of pregnant females attacked by the disease. Pregnancy is a less formidable complication than is commonly imagined, or than it was stated to be in the first edition of this work, nor does abortion or miscarriage necessarily take place."

The following case, which came under my care, illustrates the truth of Murchison's experience, and as it aids in disproving the general German belief, it may not be uninteresting:—

Mrs D., æt. 27, was admitted on the 18th July, 1876, with well-marked enteric fever. It could not be accurately ascertained when the attack actually commenced, but patient had been in bed about three weeks.

On admission, her pulse was 120. The typical rosy, lenticular spots were visible on the abdomen, and her tongue was dry, deeply scained and covered with a pale yellow fur. Before admission, she had had profuse diarrhœa. This had ceased, but, in other respects, her stools were of the enteric type. Pain, on pressure over abdomen (not localized at any particular point), was removed by a poultice. She had also a troublesome cough and rusty sputa. Auscultation of the chest discovered sibilant and sonorous râles at both apices.

According to the patient's own statement, she was between three and four months pregnant.

On the day after admission, she was rather delirious, and her temperature being high, she was sponged frequently with cold water. On the 24th (that is, six days after admission) when patient was mending somewhat, my attention was directed to a small quantity of blood stated to have been discharged from the vagina during the night. My first thought was that the

hæmorrhage was from the bowel, but this was found not to be the case. There was no pain. An examination, both by the finger and by the speculum, revealed nothing abnormal, and the os uteri was firmly closed. On account of the state of the lungs it was deemed inadvisable to give an opiate, but cold wet cloths were applied to the abdomen and vulva. The discharge, though diminished in quantity, continued on the three following nights.

On the 1st of August (the discharge having in the interval been completely arrested) I found patient complaining of pains in her abdomen and of hæmorrhage from vagina—both having continued for about an hour. On the patient getting up to stool, a large clot of blood came away. On making a digital examination, *per vaginam*, I found the os uteri dilated sufficiently to admit the tips of three fingers; two fingers could be inserted with ease. The membranes and a part of the placenta were presenting. A drachm of ext. ergotæ liq. (B. P.) was given. The pains were coming at regular intervals, and I endeavoured to dilate the os with my fingers. This causing the patient pain, chloroform was administered; but the attempt to dilate the os further failed. I ruptured the membranes and speedily brought away the foetus, which was dead. Some difficulty was experienced in the extraction of the placenta, but ultimately this, too, was brought away, with the exception of a very small portion.

After the operation, cold water was injected into uterus and vagina, a cold compress applied above the pubis, and cold cloths every half-hour to the vulva. Patient also got half-a-drachm ext. ergotæ liq. and a little brandy.

She slept well during the night, and there was very little discharge. The treatment that followed was expectant. For the two days following the operation there was slight tenderness over the uterus, and on each of these days a turpentine stuce was applied. She received three grains of calomel and half-a-grain of opium every three hours. A weak solution of carbolic acid (about 1 in 60) was injected into the vagina every four hours. She was not permitted to get up to stool; and her diet consisted of milk, chicken soup, a morsel of toast, and 8 oz. port wine.

The discharge that followed was quite natural. She immediately began to recover; and on the eighth day after the abortion was permitted to get out of bed. Two days later, she was in the open air; and on the 26th of August was dismissed perfectly well, after having been in the Hospital for five weeks.

It may be remarked that this patient had had three children and no previous miscarriage. On removing the foetus, it was seen to be about the fourth month, and seemed to have been dead for several days. Whether the destruction of the foetus was due to the hæmorrhage or to the specific poison of enteric fever, it is hard to say. It appears to me, however, to be most probable that death, resulting from the poisonous influence of the maternal blood, caused the body of the foetus to act as a foreign body and thus excite reflex action. The severity of the hæmorrhage was no doubt due to the partial placenta prævia that existed.

Since writing the above, I have been informed by Dr J. M. Barbour, my predecessor, that of three cases of abortion in enteric fever which came under his notice, there were two recoveries.

*(See also Glasgow Med Journal)*

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## Reviews.

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I.—THE LATER METHODS OF TREATING WOUNDS, ON A STATISTICAL BASIS. *By* DR PAUL GUETERBOCK, *Privatdocent in the Berlin Friedrich-Wilhelm's University.* Berlin. 1876.

SOME men are gifted with special aptitude for figures, and when this aptitude is combined with the unwearied industry of a north German, then we have a source of results which are as admirable for their minute completeness as they are difficult to grasp. On the other hand, the well known pliability and elas-

ticity of statistics renders their study capable of such varied lights and shades, and of so diametrically opposite conclusions, that we do not wonder when the upshot of such an enquiry as the one under notice is hopelessly nugatory—more particularly under such remorseless handling as that by Dr Gueterbock.

Something of this kind seems not to have been absent from the mind of the author, when he says in his preface (p. 2): “I must regard it as essentially a sequence of the mode of investigation pursued by me, that I arrived at the result that none of the later methods of dressing wounds can be regarded as preferable to or better than the old method sanctioned for nearly 100 years back.” What this “old method” is or may have been is not stated, nor does it much matter, for we anticipate that under skilful dissection the statistics of the old method would have their teeth drawn as effectually as has been done in the case of the “later methods.” These “later methods” are manifold. It looks at first perusal of this work as if a stagnation in the dressing of wounds had occurred during 100 years, and as if the surgical world had then woke up, like Rip Van Winkle, to discover new modes of dressing wounds. But not all of these later modes are of statistical value enough to obtain notice. Some of them have obtained such slight footing that they are already obsolete, others are of so recent date as to preclude exhaustive criticism, and lastly, many of them are but modifications of one another. And so, a selection being made, three later methods appear for examination—the Antiseptic Treatment of Lister; the Open Treatment; and after a little hesitation, the Wool Dressing of Guérin; the last chiefly on M. Ollier’s recommendation (p. 6): “Only an exact acquaintance with the literature of the subject, and especially the last communication of Ollier on this question convinced me that we have here to do with a discovery of more than transient interest.” As is well known, Thiersch in Leipsic has put into use a salicylic acid dressing, which is the distinct and recognised offspring of Lister’s antiseptic ideas.\* It is therefore not a distinct method,

\* Thiersch substitutes salicylic acid for carbolic acid in preparing the gauze, and he envelops the whole in a kind of jute, also saturated with salicylic acid. We may be allowed to quote from the “*Progrès Médical*,” of Oct. 7, 1876, a note on this subject by M. Thaon, of Nice (p. 693): “With the salicyl-jute the dressing is not only cheaper, it is also very simple; it is sufficient to cover the wound with a piece of salicylic gauze, and to surround the part with 140 grammes of salicyl-jute in several layers, fixing the whole with 10 yards of bandage.” M. Thaon is one of the few Frenchmen who are in favour of the antiseptic system. Even he, however, prefers the wool dressing of Guérin for injured parts during transport from the place of accident to the hospital or patient’s home.



although Dr Gueterbock writes (p. 7): "In order to avoid being misunderstood, I wish to say that I know very well that Thiersch's wound therapeutics is by no means identical with the antiseptic system of Lister. Starting certainly from antiseptic principles, the salicylic acid method has in practice borrowed much from the wool dressing of Guérin, and in doing so it has tended to restore to its indefeasible right the surgical principle of perfect rest to the injured part—a principle which the system of Lister tends to subordinate." We have here, thrown in as it were by the way, a remark which is of pregnant interest for the antiseptic school. Could the antiseptic dressing employed be trusted to work on for weeks undisturbed, instead of having to be changed every week or every second day, as at present, how much more secure would be the position. We must, however, deny point blank the accuracy of the statement as made. The antiseptic treatment does *not* tend to disturb the repose of the injured part; it is, on the contrary, a source of congratulation to the surgeon that by its means the part can now be allowed to lie undisturbed twice as long as under the "old method of the last 100 years." Only the dread of putrefaction is permitted to disturb the antiseptic dressing, and a period of a week is even now not considered too long to intervene between the changing of the dressings.

But leaving this point, as tending rather in favour of the antiseptic treatment than against it, let us rejoin the author in his study. Having selected three later methods, he proceeds to deduce from published results the relative value of each. But at the very outset, a limitation must be put to the expectations of the student. Of course, the field of observation is, from the nature of the case, Hospital practice. But (p. 8) "No one need suppose that by the introduction of any one of these three methods, the mortality of a Hospital, or even of a single Surgical Department, can be affected. I will show further on that the mortality is subject to very slight variation, and that (as Billroth has already pointed out, *Chir. Klinik Wien*, 1868, p. 5) its height is to be turned to account neither with regard to the salubrity of the Hospital nor with reference to external influence on this salubrity on the part of a method of dressing wounds. *There is no other way than to study single decisive series of cases, and to draw conclusions as to the wound therapeutics employed, not only from their results, but also from the course which the cases run.* Naturally, these series must be sufficiently large, and extend over a sufficient number of years, to avoid the errors which so often spring from small numbers." Such, then, is the scope of the work, and we trust that, in spite of the negative character of

the results, something may be gathered of interest during the investigation into which we are to follow the author.

It is difficult to select, in the present condition of statistical publications, such series of cases as illustrate well the effect of dressing. The material has been in general too roughly put together, and the details are too scanty for this purpose. Perhaps the amputations are on the whole the best, as being easily compared. But even amputation statistics present rather rough averages than accurately detailed series. Dr G. begins by defining the class of amputations which is suitable. Finger and toe, and even hand and foot amputations are usually excluded, but no others; while all amputations through joints come into the lists. Double amputations are so fatal as hardly to afford proper material. Thus, in the last six years of Guy's Hospital returns there occur 11 double amputations of which 10 died, and of these 11, 7 came into one year, 6 of them dying. Dr G. would therefore exclude such a disturbing element as double amputations. So far good; but further, *the amputation tables in all hospitals show from year to year a notable variation in all circumstances, and this, which may be called the rule of normal deviation, must be considered in treating of the effect of dressing.* A glance at the table reproduced on the following page will shew this to the reader.

There is no rule without exceptions, and so instances which show apparent exceptions to this *rule of normal deviation*, might be brought forward. Thus Erichsen (Lect. on Hospitalism, *Lancet*, Jany. 17, 1874) relates how his personal experience over 20 years, showed a steady yearly mortality of 23·5—25·8 p.c., a merely trifling deviation. But such localised and restricted series cannot be allowed to upset a rule which is based on the statistics of entire hospitals. Dr G. therefore lays it down as a notable fact that (p. 15) "Variations in the results of the major amputations occur in every hospital with a regularity and to an extent which, though known to a few investigators, has not become generally acknowledged." But the matter does not end here. The result of the major operations is compensated for by the results of the remaining surgical cases, so that the whole surgical mortality is a pretty steady figure, only varying within very narrow limits. This is quite independent of modes of dressing. Erichsen (*loc. cit.*) quotes the case of a hospital in which in a particular year all the Herniotomy cases recovered, while all the amputation cases, except two, proved fatal. In other instances such factors as, the number of persons admitted in a moribund state, the proportion of injuries to chronic cases,

AMPUTATION STATISTICS.

A			B			C			D			E			F									
ST BARTHOLOMEWS' HOSP., LONDON.			GUY'S HOSPITAL, LONDON.			ST GEORGE'S HOSPITAL, LONDON.			PENNSYLVANIA HOSP., PHILADELPHIA.			GLASGOW ROY. INF., GLASGOW.			RUDOLF-STIFTUNG, VIENNA.									
Year.	Total.	Died.	Year.	Total.	Died.	Year.	Total.	Died.	Year.	Total.	Died.	Year.	Total.	Died.	Year.	Total.	Died.							
in p Ct.			in p Ct.			in p Ct.			in p Ct.			in p Ct.			in p Ct.									
1865	58	19	32.76	1869	31	8	25.8	1865	28	13	46.43	1869	27	4	14.81	1866	81	35	43.21	1865	23	7	30.43	
1866	33	7	21.21	1870	49	17	34.7	1866	30	12	40.00	1861	27	3	11.11	1867	56	16	28.56	1866	15	4	26.67	
1867	32	10	31.25	1871	60	26	43.33	1867	24	12	50.00	1862	29	9	31.03	1868	71	27	38.03	1867	14	4	28.55	
[1868	37	15.2	?	1872	42	14	33.33	1868	24	14	58.33	1863	35	11	31.43	1869	71	25	38.21	1868	23	12	52.16	
1863	38	7	18.42	1873	48	14	28.75	1869	27	12	44.44	1864	39	15	38.46	1870	102	17	16.67	1869	14	11	78.57	
1870	38	8	21.05	1874	91	22	24.8	1870	19	8	42.11	1865	31	8	25.81	1871	96	19	19.79	1870	18	4	22.22	
1871	40	7	17.50					1871	32	6	18.75	1866	42	15	35.56	1872	125	27	21.60	1871	29	14	48.28	
1872	41	5	11.96					1872	27	12	44.44	1867	22	6	27.27	1873	100	23	23.00	1872	19	7	36.84	
1873	38	1	2.62					[1873	17	5	29.4]	1868	24	7	29.17	1874	139	53	38.12	1873	26	13	50.00	
1874	49	11	22.24					1869	37	8	21.62	1869	37	8	21.62									
								1870	30	8	26.67	1870	30	8	26.67									
								1871	36	9	25.00	1871	36	9	25.00									
								1872	27	7	25.93	1872	27	7	25.93									
								1873	31	7	22.58	1873	31	7	22.58									
								1874	27	10	37.037	1874	27	10	37.037									
Sum.	370	70	18.92	321	101	31.47	211	89	42.18	461	127	27.37	811	212	28.78	181	76	41.99						
Aver- age	41.11	7.67		53.5	16.83		26.475	11.125		30.93	8.47		93.44	26.89		20.11	8.44							

The figures in brackets are not taken from the official reports of the respective Hospitals, and are therefore not included in the addition of the columns.

the reception or refusal of very grave or hopeless cases, might and would exercise a decided influence on the surgical mortality, quite apart from any mode of dressing. And we have just seen that a few double amputations more or less in any given year, or series of years, would completely alter the fatal percentage. *The total surgical mortality, therefore, does not afford any criterion of the effect of the dressings.* This line of research must accordingly be abandoned; and the attention concentrated on certain series of amputations and compound fractures, from the behaviour of which cases something may be inferred as to the value of the dressings.

Dr G. commences by reviewing the results of the *Open Treatment* as illustrated by tables which are quoted from Krœnlein's work on this method. These tables refer to two periods immediately following each other, in the Zurich Hospital. The first period is that from 1860-67, when, under Billroth's charge, the ordinary dressings were used. The second period is that from 1867-71, when, Rose having succeeded Billroth, the open treatment was adopted. Dr G. goes into a close criticism of the figures of the tables as given by Krœnlein, into which we shall not follow him; but he ends it by allowing that after deducting several minor sources of error, the amputation mortality under Billroth (ordinary dressing) was 47·62 p.c., as opposed to that under Rose (open treatment) of 15·38 p.c.

An ordinary observer would feel inclined to admit, with Krœnlein, some beneficial influence of the open treatment of the wounds here. Not so Dr G. We quote him more in full, to show what legerdemain is practicable with figures (p. 58): "It must now be asked if this still notable difference between the two mortality rates is due only to the differing effects of the different modes of treatment. Krœnlein certainly thinks that the answer is already given in the affirmative. But, in what follows, several points not regarded by Krœnlein shall be discussed, and by their help it shall be shown that he has underestimated the unfavourable influence which the age of the patients and the seats and the causes of the amputations have exercised in the period of 1860-67; and that he has in the same proportion over-estimated the effect of the altered treatment in the period of 1867-71.

"As to the influence which the cause of the operation has had in the periods under notice, Krœnlein avers that the traumatic as well as the so-called pathological amputations in detail and *in toto* have given better results in the period 1867-71, than in the previous period. He says, 'The objection that in the 140 first cases (1860-67) 63·5 p.c. are traumatic, while in

the 85 following (1867-71), the traumatic cases are only 48·2 p.c.; that, accordingly, the lessened mortality in these 85 cases must be ascribed to the small number of traumatic cases, has no force at all, since, as the statistics show, the mortality of the traumatic cases in the period 1867-71 is not only much smaller than in 1860-67, but is even exceeded by the mortality of the amputations on account of caries and necrosis, as well as by the whole mortality (20 p.c.).<sup>7</sup> The argument of Krœnlein, just quoted, would be correct, did not the traumatic amputations evince very great differences among themselves, in particular, including two separate series of amputations, secondary and primary, and these series are very differently distributed in the two groups of amputations which lie before us for comparison.

“There were in the period 1860-67, seventy-seven traumatic amputations, or 61·11 p.c. of all amputations. Of these 77, there were no fewer than 32, or 41·53 per cent. secondary. The corresponding figures for the period 1867-71, were 36=46·15 p.c. and 11=30·75 p.c. Were we to assume the number of the secondary amputations in the second period, as like that in the first, 41·53 p.c., this would be, instead of 11=14·95 secondary amputations, with 2·72 deaths. The whole traumatic amputations, according to this calculation,—the number remaining at 36—show a somewhat, though not very much, higher mortality, about  $\frac{1}{2}$  p.c., than that which is obtained by direct calculation. The superiority of the results in the period 1867-71, over that in the period 1860-67, is as good as unaltered; but one must not overlook the fact, that by a thorough comparison of the two series of amputations, a quite different result would appear from that given by Krœnlein’s figures. I must confess that I consider that the result of the tables, which shows a difference of nearly 60 p.c. between the results of the secondary operations in the two periods, is capable of the most diverse interpretations. I would willingly have referred it, with Krœnlein, to the different after-treatment, but this 60 p.c. appeared to me to depart too far from the usual experience. Besides, I soon saw that we had here to do not only with a serious difference in the mortality of the secondary amputations in the two periods, but also the results of the secondary amputations fell off notably from the whole mortality, and especially from that of the primary traumatic amputations in Billroth’s period. Certainly the mortality of the so-called secondary amputations is in all hospitals very unfavourable. For example, averages over a large series of years were as under:—



“ But in none of the institutions referred to is the difference between the fatality of the primary and secondary amputations so great as in the Zurich Klinik for the period 1860-67. The percentage of death after primary amputations was here 31·11, that for the secondary 75·00, the difference between them was therefore nearly 44 p.c. I was, therefore, obliged to assume special drawbacks as the causes of the exceptionally high mortality of the secondary amputations, even had I been prepared to admit that the dressing, said to be inferior to the open method, had exercised an influence, and a further inquiry showed me that this assumption of mine was borne out by the facts. It struck me, namely, in looking through the amputation tables in Krœnlein’s work, three years ago, that it was pointedly stated that Billroth’s secondary amputations were performed in stadio pyæmico of the patient, or even after the appearance of rigors. This circumstance led me to seek more detailed accounts of the so-called pyæmia and septicæmia cases, in the tables at the end of Krœnlein’s work. I then found that not only a considerable number of the secondary traumatic amputations, but also some of the pathological amputations, were in patients who were already pyæmic.” Dr G. shows in detail that at least 20 amputations in Billroth’s time were undertaken, either in pyæmic patients, or were intermediate, that is, were undertaken during the course of the febrile excitement occurring from the second to the tenth day after injuries. He allows, however, that even deducting these cases, Rose’s results are still considerably better than those of Billroth. Even now, however, Dr G. will not allow the mode of dressing to get the credit of the good results. Having got so far, there are several other points for Dr G. to comment on. There is, first of all, the effect of age. He shows that the number of aged patients (*i.e.* over 50 years) operated on, is much greater in Billroth’s epoch than in the following one—and he insists, with a desperate tenacity, that although the aged patients under Rose gave better results than the same class of patients under Billroth, yet the actual number of aged patients in the time of Rose is too small to form a basis of deduction. This is an approach to a special pleading for Billroth rather than a dispassionate review of facts.

Dr G. makes a better figure when he treats of the bearing of advanced age on secondary hæmorrhage. The table which he gives is so instructive, that we quote it entire :—

TABLE SHOWING THE RELATION OF SECONDARY HÆMORRHAGE TO THE AMPUTATIONS IN THE ZURICH KLINIK.

A. 1860—1867.					B. 1867—1871.			
Seat of Amputation.	No. of Amputations.	Died.	Age of Patients with secondary hæmorrhage.	Age of Patients who died of secondary hæmorrhage.	No. of Amputations.	Died.	Age of Patients with secondary hæmorrhage.	Age of Patients who died of secondary hæmorrhage.
Thigh.....	7	7	63. 56. 52. 50. 25. 23. 23.	65. 56. 52. 50. 25. 23. 23.	4	2	51. 39. 37. 36.	51. 38.
Leg .....	11	8	66. 60. 54. 46. 45. 41. 40. 38. 29. 22. 21.	66. 54. 46. 45. 40. 29. 22. 21.	—	—	—	—
Foot .....	3	1	42. 23. 18.	42.	2	0	53. 43.	—
Upperarm...	2	1	32. 20.	20.	2	1	30. 19.	19.
Forearm .....	5	1	73. 33. 22. 17. 15.	73.	—	—	—	—
Hand .....	2	0	39. 27.	—	—	—	—	—
Total ...	30	18	Average: 34.97 years.	Average: 41.67 years.	8	3	Average: 38.38 years.	Average: 36 years.
Of those over 50 years	8	7	Average: 59.25 years.	Average: 59.14 years.	2	1	Average: 52 years.	Average: 51 years.

His observations thereon are pertinent and to the point. He shows, first, how the average age of the aged patients under Billroth is 59.25 years, as against an average of 52 years in Rose's epoch. Now, all the aged patients of the age of 59.25, and over, who had secondary hæmorrhage, died. The aged mortality is therefore heavier in Billroth's time.

A last item is the influence of the site of the amputation on the mortality. At the first glance, taking site for site, the result is always in favour of Rose's open treatment. But in Dr G.'s careful hands this is modified. The material (*i.e.* patients), as shown above, was rather different in the two periods, and the amputations are irregularly distributed. Thus (p. 70), "Thigh and leg amputations are over 49 p.c. in 1860-67; on the other hand, not quite 45 p.c. in 1867-71. The number of the traumatic leg amputations is, in the last epoch, 3; in the first epoch, 19; numbers which can hardly take part in a comparison as to the working of the treatment, and which prove nothing further than that here, apart from any treatment, the amputations of Billroth in the Zurich Klinik were from the



outset in unfavourable circumstances as compared with Rose's operations."

We are now quite prepared to hear Dr G. affirm (on page 70), "That in the case of the amputations from 1860-67, an unfortunate combination of unfavourable influences, of age, cause for operation, and site of operation has had an important bearing on the final result; and that these influences did not obtain in the same degree in the case of the amputations of the following epoch, as in the preceding one."

The candour of the memoir leaves but one impression on the mind of the reader, namely, that in spite of this very skilful analysis of the statistics, a decidedly better result was obtained by Rose than by Billroth; and the influence of the mode of dressing occupies the background of the reader's mind, as the only possible explanation of the margin of good results left after making all the deductions claimed. This impression is rather strengthened than weakened by the remaining considerations in this section. These are based on the behaviour of the wounds under the rival system of dressing. Painlessness, simplicity, and economy are advantages which admit of no dispute; and are none the less important because they are not the subject of dispute, being freely conceded to the open method. On the other hand, the open method has shown a greater proportion of cases of necrosis of the sawn surface of the bone, 19 cases as against 15 cases in Billroth's time.\* This is balanced by the fewness of the cases of gangrene of the flaps, 5 cases versus 9 in Billroth's list. But these are evidently minor points, not telling weightily either way. Much more important is the occurrence of the accidental wound-diseases, as pyæmia, erysipelas, tetanus, and hospital gangrene.

Now, it is not denied, that in the later epoch (of open treatment), pyæmia and septicæmia were remarkably less frequent over the whole Zurich Hospital than before. But here Dr G. steps in with new tables, insisting upon the fact that pyæmia is a complication which varies excessively from year to year in all hospital returns. In defence of this, he gives a comparison between St Bartholemew's Hospital and the Zurich one. He insists, further, that no one ever thought of putting down such variations to the influence of the dressings before; and therefore that we must pause before doing so in this instance. The inspection of the table conveys to us, however; quite the

\* It is doubtful whether necrosis of the end of the bone after amputation can be said to indicate anything regarding the dressings. Such necrosis appears to depend more upon the fact of the nutrient artery of the bone being cut or not.

impression which Kroenlein wishes to impart—viz., that coincidentally with the employment of the open dressing in Zurich, a decided decrease in the amount of the pyæmic returns took place. The diminution in the pyæmia at St Bartholemew's was likewise coincident with the introduction of a modified antiseptic treatment by Callender. The point may be considered not quite disposed of; and further statistics are to be desired.

As to erysipelas, it is not claimed that erysipelas diminishes under the open dressing. The occurrence of idiopathic erysipelas puts a disturbing element into this question; and takes the erysipelas out of the range of the wound-dressing altogether.

Lastly, the relation of the open dressing to tetanus and hospital gangrene is not defined by any comprehensive returns; and it must likewise be left unsettled.

So much for the open treatment of amputation wounds. The handling of the very striking figures by Dr G. is certainly startling, and while one is constrained to admire the style of his scrutiny, it is impossible to avoid a slight feeling of fatigue in following him. It is almost with a feeling of relief that we learn from him that the statistics to hand are too meagre to allow of adequate notice of the behaviour of compound fractures under open dressing.

The next task for the reader is the comparison of the *Antiseptic Statistics* with those of the "old method," and here we are treated to a pair of tables analogous to those of Rose and Billroth, in so far as they refer to the practice of two surgeons in the same hospital. The one surgeon is Lister himself, the other is Spence. The period in either case is two years. Here, at the very outset, is a peculiarly important fact, in stating which, Dr G. has fallen into an error. The number of the amputations is the same in the two tables. Now, Lister has 55 beds in his wards; Spence has only 30. To an outsider it appears plain that if Spence has as many amputations as Lister has, in two years, there must be many more serious cases coming into Spence's wards than into Lister's to demand such an excessive proportion of amputations. But the fallacy is easily exposed by any one who is familiar with the facts on the spot, and the explanation tells forcibly in favour of the antiseptic system. The reason why Lister has so small a proportion of amputations is not that he has less serious cases, *but that he saves smashes, which Spence amputates*. There cannot be any doubt that here is one of the very

strongest points for his system, for it is certain that smashes are no longer dreaded as they used to be, and that many crushed limbs are now retained by their owners, which, under the "old method," would have been at once lopped off; or, if not at once, then after a week or ten days' trial of the old dressing, and supervention of pyæmic symptoms.

It is unfortunate that the tables do not show the relative proportion of primary and secondary amputations, and the scrutiny of the figures is therefore imperfect. The numbers also are small.

AMPUTATIONS PERFORMED.

Seat of Amputation	A. Spence's Department 1./10.1872—1./10.1874.		B. Lister's Department 1/1.1872—31./12.1873.					
	No.	Died.	No.	Died.				
Hip . . . .	—	—	Lower Extremity : No. Died. 30 6 (20%)		Lower Extremity : No. Died. 26 7 (26.92%)			
Thigh . . . .	18	6					3	3
Knee . . . .	1	0					9	4
Leg . . . .	3	0					6	0
Ankle . . . .	8	0					2	0
			6	0				
Shoulder . .	1	1	Upper Extremity : No. Died. 6 5 (83.33%)		Upper Extremity : No. Died. 10 1 (10%)			
Upperarm . .	2	1					3	1
Forearm . .	3	3					2	0
			5	0				
<b>Total</b>	<b>36</b>	<b>11</b>	<b>(30.55%)</b>	<b>36</b>	<b>8</b>	<b>(22.22%)</b>		

Passing over the criticism on this table, in which Dr G. points out, in a similar manner to that formerly quoted, the various modifying influences which have affected the rate of mortality, there remain the two cases of pyæmia and phlegmonous erysipelas in Spence's return. To explain these, the tables are resorted to (page 93), "Pity," says Dr G. "that the material at disposal is not suited for this purpose. Reyher, indeed, speaks in a general way of the absence of the accidental wound diseases from Lister's wards; but he only proves this for the amputation cases in the period under notice, and it is perhaps not going too far if—pending

further communications—we see in this merely the play of chance, especially if we consider that the diseases spoken of have complicated the fatal amputation cases only in the most isolated way, in Spence's wards which are under the same roof as those of Lister."

According to the memoir, therefore, Lister's results are too nearly rivalled by Spence's results to be of decisive value, and the non-occurrence of pyæmia is, in view of the *almost immunity* enjoyed by his rival, to be considered as a very insignificant point.

We cannot pursue the argument in detail as applied to the statistics of those hospitals in Germany which have adopted the antiseptic dressing; but we may quote the remarks about the cases in the Glasgow Royal Infirmary, as these may interest many of our readers (page 126): "Here, also, we find years of the most brilliant results, which are, of course, ascribed simply to the method of Lister, without taking into account the law of annual variation in the amputation statistics of large hospitals. People have lulled themselves in the greatest security and trust in this method, and results opportunely appear, which may, without further ado, be called average ones. The best example of this is the Glasgow Royal Infirmary, that hospital in which Lister made his first trials of this method, and in which these trials have since been carried on, on a large scale. I shall have occasion later on to refer to these last; I must only repeat here, what I said five years ago, that the temporary improvement in the amputation results in this hospital has nothing at all to do with Lister's method. I sought formerly to show that the better amputation results and the cessation of hospital gangrene depended on essential alterations in the circumstances of the hospital in general. I may here adduce the counterproof. We observe in the amputation statistics of the following table in the beginning of the year 1870 a continually improving death-rate; but, with apparent abruptness, the year 1874 interrupts the calculation, the amputation results are worse than in any of the recent years, and, above all, pyæmia increases in an unusual way as a cause of death:—

## VIEW

of the major Amputations and Exarticulations, as well as of the fatal Pyæmia cases among these, in the Glasgow Royal Infirmary, from 1866-1874.

Year.	Number of Amputations.	Died.	Per Cent.	Died of Pyæmia.	Per cent. of Pyæmia Cases in the total number of Amputations.	Per cent. of Pyæmia Cases in the fatal Amputations.	REMARKS.
1866	81	35	43·21	33 (?)	40·74	94·29	Of these, 7 cases as Pyæmia and Collapse, 15 as Pyæmia and Phthisis, 4 as Pyæmia and Secondary Hæmorrhage.  1 fatal case of Erysipelas.  Besides 2 cases of Erysipelas and Pyæmia, and 1 Case of Erysipelas.  1 Amput. crur. died of Septicæmia.  1 Amput. ped. utriusque died of "Traumatic Fever."
1867	56	16	28·56	11	25·00	87·50	
1868	71	27	38·03	7	9·89	25·93	
1869	71	25	35·21	8	11·27	32·00	
1870	102	17	16·67	4	3·92	23·53	
1871	96	19	19·79	8	8·33	42·10	
1872	125	27	21·60	10	8·00	37·03	
1873	100	23	23·00	3	3·00	13·04	
1874	139	53	38·12	21	15·11	39·62	
	841	242	28·78	108			

Where is here the healing influence of Lister's method? My doubts will, perhaps, be met by the statement that the good years, and not the unfavourable results of the amputations in 1874, are to be wondered at. My answer is, that there is nothing at all to wonder at if, leaving Lister's method out of the question, the factors are kept in view which experience proves to govern amputation statistics. These are, as was shown before, on the one hand the circumstances of the hospital, but above all, the *patient material*. In regard to this, it may be stated that an improvement occurred

at the beginning of the current decennium, in so far as the Directors of the Glasgow Royal Infirmary succeeded in freeing themselves from the compulsory admission of smallpox or infectious fever patients. On the other hand, the number of surgical patients continually increased, till it reached a sort of climax during the first ten months of the year 1874—the year distinguished by the abundance of pyæmia and the high amputation mortality. With the opening of the second large Glasgow Hospital (the Western) on the 1st November, 1874, this was suddenly altered, so that the total of the surgical patients in 1874, in spite of their accumulation in the first ten months, was rather under the total of the preceding year. The chief contingent in this increase of surgical material was furnished by the remarkably drunken Irish working class in Glasgow, the growth of which is not only a most weighty fact for Glasgow and the West of Scotland, but in particular, could not remain without influence on the Infirmary. The year 1873 shows, as compared with 1870, an increase of over 400 Irish patients, not inclusive of smallpox or infectious fever cases.

“These facts may here find a place, as further aid in forming an opinion about the effect of Lister’s or any other dressing, &c.”

It must not be forgotten, in thinking about the antiseptic system of Lister, that it does not pretend to clear away all dangers from the path of operative surgery. It limits its pretensions, and its *raison d’être* is merely this, that it obviates one prime danger in the course of recovery from serious wound putrefaction. No one fancies, or has any right to fancy, that carbolic acid, however applied, can prevent scarlet fever, diphtheria, erysipelas, or malignant pustule. Of the strongly individualised poisons which presumably give origin to these diseases, we know next to nothing; but we do know, and we can prove by direct experiments, that carbolic acid arrests putrefaction; and its usefulness is shown in shielding the blood of the patient from the admixture of putrid matters from raw surfaces. The surgical fever, which so rarely complicates wounds under antiseptic dressing, is under the “old method sanctioned for over 100 years,” a continual result of the absorption of these putrid matters, and it is a standing danger to the patient. We may, with Dr G., put hospital gangrene, “wound diphtheria,” and tetanus into the category of diseases not prevented, so far as is known, by antiseptics. There may be some special poison

for these; and, although the facts, scanty as they are, tend in an opposite direction, it may be for the present left in doubt whether tetanus ever owes its origin directly to putrefaction. But pyæmia occupies a different platform from these: owing its existence to the presence of septic materials in the blood, it can be and it is prevented by the antiseptic system. It is true, there are facts which tell against this view (page 133): "I come lastly to pyæmia. As to this, too, doubts about the prophylactic influence of Lister's method are not confined to his opponents. I may here refer to Nussbaum and T. Holmes, the latter of whom thinks that only a more prolonged experience can show whether the antiseptic treatment has anything to do with the occurrence of pyæmia (*Lancet*, 1875, Oct. 30, p. 628), and I here remark that Holmes must now be reckoned among the thorough adherents of the method in question. Attention may be again directed to Dunlop's operation list in the Glasgow Royal Infirmary, formerly alluded to.\* We saw from this list that 5 fatal cases of pyæmia occurred in 27 amputation cases, and though we may refer to our former remarks for important details, it is here to be intoned, that in the said report, the possibility of a complete disappearance of pyæmia from Dunlop's wards is expected, not so much from a strict carrying out of the antiseptic system, as from the introduction of general hygienic arrangements."

With regard to the series of cases by Dunlop, we may remark that in his own paper Dunlop asserts that the antiseptic system was imperfectly carried out in his wards. Possibly, the other authorities quoted are in the same faulty position, although less alive to the imperfection of their instruments. The negative value of this evidence is too small to be seriously considered. Nor is the argument of the "normal variation" in the appearance of pyæmia from year to year strong enough to account for the absolute immunity of Lister's own wards over such a series of years as can now be quoted.

The material to hand does not tempt Dr G. to criticise closely the relative value of the antiseptic versus the open system; but we may quote his concluding remarks thereon (page 138): "It is difficult in such circumstances to say precisely how far Volkmann or Krœnlein are right or wrong in

\* Contribution to Antiseptic Surgery, being notes of cases treated in the Glasgow Royal Infirmary, by James Dunlop. Glasgow, 1876.

their conclusions in favour of the one or the other method. The advantages and disadvantages of the antiseptic method, as compared with the open treatment, lie in quite another field of view than that at present accessible to us through figures. I set forth before the advantages which are to be expected from a general introduction of the open treatment, it is now my duty to state in how far the antiseptic method may be preferred to it. The open treatment is, as may be readily imagined, not suited for dispensary and private practice: in place of it the antiseptic system is there suitable, without expecting any great wonders from it. The latter has the merit of being an excellent occlusion-dressing, restraining the suppuration, and allowing at all times easy and safe inspection of the wound. It differs herein from Guérin's wool dressing, which maintains to a still higher degree the principle of occlusion."

The question of the compound fractures under antiseptic dressing is still more hopelessly complicated, from a statistical point of view, than that of the amputations. By the "antiseptic" plan, as we before pointed out, many bad forms of compound fracture are saved from the knife, forms of fracture which are submitted to amputation in "septic" practice. The tables, therefore, show unequally the effects of dressing, for in the "septic" tables only the less severe compound fractures are found. The fractures vary also in the amount of bruising which accompanies them, the habits of the patients, and so on. We are of opinion that Dr G. is right when he agrees with Gurlt, that each compound fracture case must be considered on its own merits. We pass over, therefore, the pages in which Dr G. labours to prove that certain statistics from St George's Hospital, favourable to the antiseptic treatment, are not sufficient to prove anything at all; and we quote, as less tantalising and more to the purpose, his very apropos remarks on the statistics of the Glasgow Royal Infirmary (p. 172): "We know that the first trials of his antiseptic system were made by Lister in the hospital just named. The method has now developed itself there to such an extent that Macleod, one of the leading Glasgow surgeons, says of it that it gives quite wonderful results in the treatment of severe compound fractures; and another hospital surgeon in Glasgow, Patterson, would give it a place in the world equal to that of chloroform. If we enquire in what way such an enthusiasm for Lister's method can be supported and explained, we must confess that, with the exception of the four cases of compound fracture (with



one death from pyæmia), in Dunlop's report quoted above, the greater part of these cases in the Glasgow Hospital are, as a rule, reported in an incomplete style. People at a distance, who have not the advantage of seeing the patients alluded to face to face from day to day, are quite unable to form an independent opinion on the course and import of the individual cases, from such short, cursory, condensed reports, which have not even the advantage of being in tabular form. Among others, this is mostly impossible\* in the reports of 19 compound fracture cases in 1872 from George Buchanan's and the late Dr Dewar's wards. To the fact that all these 19 cases recovered may be opposed the not less weighty fact that Morton, the only surgeon of that Hospital who has from the very first held aloof from Lister's method, has, in the very same Infirmary in which this method achieved the triumph just noticed, lost only 1 (by pblebitis) out of 27 compound fractures in the course of two years. Two very old men, who died of compound fracture of the leg in the days immediately following the injury, are rightly excluded by Morton from his table, the more so that one of them was, during the two days that he survived the injury, antiseptically dressed. In view of these facts, it must fill us with the deepest mistrust of the antiseptic system, when we learn that Macleod, who advocated the method so passionately for compound fractures, recommended in the strongest manner about a year later the open treatment, slightly modified, for flap amputations. It might be argued, that a dressing which did excellent service in compound fractures, might be less suited for amputation stumps; but such a statement, right enough in itself, can have no weight in the consideration of the antiseptic method, the characteristic of which is a striving after sole predominance in surgery over all other dressings. Lastly, it must be added as a fact of the last importance, that we get from the yearly report of the Directors of the Glasgow Royal Infirmary of the whole compound fractures (*i.e.* including those saved and those amputated), quite another picture of the results of these injuries than we got from the previously mentioned series of cases, published by the individual hospital surgeons for particular purposes.

\* In many instances even the size of the wound is not indicated. (Dr G.)

VIEW OF THE MORTALITY OF THE CASES OF COMPOUND FRACTURE  
TREATED IN THE GLASGOW ROYAL INFIRMARY IN THE  
YEARS 1866—1874.

	1866.	1867.	1868	1869.	1870.	1871.	1872	1873.	1874.
I. Total Compound Fractures,	77	...	59	69	70	87	79	142	69
Died.	33	21	20	22	11	35	26	58	22
in per cent.	42,86	25,93	33,90	31,88	20,00	40,33	32,91	47,88	31,88
II. No. of Compound Fractures of the Leg,	55	54	42	44	32	42	42	75	41
Died.	26	16	15	17	3	21	15	32	11
in per cent.	47,28	29,62	35,56	38,63	9,375	50,00	35,56	42,67	26,83
III. No. of Compound Frac- tures of one bone of Leg besides these,	...	...	...	...	8	6	11	...	...
Died.	...	...	...	...	1	0	0	...	...

In the table here given are arranged all the compound fractures admitted, with the respective mortality of the individual years. In a separate column are the statistics of the compound fractures of the leg not combined with other injuries. We get from this a view of the yearly variations in the results in such cases; but we cannot go further into the causes of these variations or their relation to the corresponding major amputations, as this would lead us too far from our subject. To explain the table, we would merely remark that compound fractures of the carpus and tarsus and digits are not included. The number of these was in the one year so small, and in the other year so excessive, that it must have seemed to the reporter likely to produce inequalities in the returns. Further, among the fractures those coarser bruises are not included, which, in the form of railway smashes and crushes, have such a serious effect on the whole organism as to deserve a special category for themselves.

“If we now recapitulate all that has been said in the preceding pages on the relation of antiseptics to compound fractures, the whole may be concentrated into the statement that as yet there are no facts which place the authoritative introduction of this method into this department of therapeutics on a footing of absolute necessity. Lister’s method is at date by no means for compound fractures, that which quinine is for fever, or mercury for syphilis. That it has advantages in that it, when properly applied in single cases of compound fractures, simplifies to a certain extent the course and duration of the healing, is as little disputed by me as the circumstance that it gives

a well-grounded occasion for further experiments in the antiseptic direction (*e.g.* Thiersch's). But what more might be said about Lister's method in compound fractures relates not to well-established facts, but rather to guesses, which pass for more or less probable, according to the particular bias of the various authors."

So far Dr G. Through the whole course of this book one is forced to admit a feeling as if one were walking on a quicksand which might at any time give way below one's feet. The statistics are so elastic, so full of error and sources of error, that one is obliged to mistrust all conclusions deduced from them. When, therefore, the author concludes that his examination of the statistics of this subject lead him to quite negative results, we may feel entitled to rejoin that we in turn are wholly sceptical as to his conclusions, and resolved to look at the question for ourselves, on the basis of clinical experience of individual cases.

We cannot afford the space to go into the scrutiny of the wool dressing of Guérin, more especially, as the results are as unsatisfactory as any of those previously given. Certain particulars may be culled from the 18 pages devoted to the wool dressing. Noteworthy among these is the fact that wounds heal slowly under wool dressing, more slowly even than under the carbolic treatment; that the wool dressing gives the patient very little uneasiness; and that it is a good dressing for wounded parts during transport from place to place. Beyond this, nothing can be learnt from the statistical examination of published cases.\*

We may here leave the subject for the present. But before doing so, we would direct the attention of clinical clerks and surgeons to the excellent form of report which Dr G. gives at the end of his painstaking memoir. Were cases accompanied by such concise summaries as these, instead of being ranked in bald and often useless, not to say misleading "tables," something more might be learnt about the results of dressing. But so long as half-yearly and yearly reports are published in their present defective shape, we can look for very little progress.

\* Those who are interested in it may find a description of Guérin's wool dressing by Walter Reid, M.D., in the *Lancet*, April, 1873, page 590. From this it would seem that Guérin holds the flaps aside after amputations, packs the hollow with pledgets of cotton wool, and then envelops the whole stump in a copious succession of layers of wool, finally bandaging it firmly down with a calico bandage. This dressing is allowed to stay on undisturbed for 30 days, when it is changed. The same period is allowed to go past before renewing the dressing.

## FORM OF REPORT

FOR AMPUTATIONS AND OTHER SEVERE CASES.

*(Filled in from an actual case.)*

Nationality of the Patient.	Anna E. Daughter of a merchant from Berlin. 11 years old.
Date of Admission.	17th October, 1875.
Date and Nature of the Injury or Disease.	For 2 $\frac{3}{4}$ years caries of the left tibio-tarsal joint, with suppuration of the same; latterly ichorous.
Minor Injuries; minor Operations; and further illnesses at the time of the Operation.	Intractable diarrhoea.
Course of the Wound. { With complications. { Without       ,,	Acute eezema of the stump.
Character of the Wound.—Fever.	Highest observed temperature, 38.2° C. at 4 P.M.; thereafter normal.
Nature and Duration of the Treatment.	Dressing strictly according to Lister; at first union by first intention, except at the site of the drainage tube; soon, however, acute eezema from the knee downwards, so that the epidermis came off in flakes. The closed wound reopens. Dressed with a Salicyl compress from 28th Oct., 1875, onwards.
Result. { Death.—Date. { Recovery.—Date of the Cicatrisation.	5th Dec., 1875. Wound quite closed; final dressing, a covering with flannel baudage and wool.
Date of Dismissal.	15th Dec. Patient attempts to walk with crutches; stump rounded already. General condition excellent at dismissal.
Remarks.	Later on the patient came under treatment for other bone diseases; the stump remained quite sound, however.

II.—A TREATISE ON GOUT AND RHEUMATIC GOUT. *By* ALFRED BARING GARROD, M.D., F.R.S. London: Longmans, Green & Co. 1876.

THIS book is well entitled to be considered the standard work on gout in English medical literature, and the fact of its having been translated into French by Dr Charcot, of Paris, himself no mean authority on the subject, is a sufficient index to the esteem it enjoys on the Continent.

Garrod has made the study of this disease so much his own, and has contributed so many original observations to its literature, that it would be matter of wonder if the book did not bear the impress of authority.

The subject, however, is yet far from exhausted. Questions crop up at every branch of the inquiry, over which much controversy has taken place, and which even yet are by no means definitely settled. The composition of the blood in gout is one of these. What alterations can be detected in it in gouty subjects? Do the normal constituents become altered, or are the products of waste retained in it, thereby vitiating its composition? The author treats of this subject at great length and in a most exhaustive manner, and the conclusion he arrives at is that it is the augmentation of principles which exist in healthy blood that constitutes the peculiar alteration in this disease. The chief of these principles is uric acid in the form of urate of soda, for the detection of which he has devised a test called the "uric acid thread test." He treats some of the blood serum with a little acetic acid, and into it he puts one or two cotton threads, and sets it aside for thirty-six or forty hours to allow the uric acid to crystallise. At the end of this time, if uric acid be present in abnormal quantity, the crystals will be found arranged in strings along the threads, and can be quite easily demonstrated with a single lens. From a large number of experiments he shows that uric acid always exists in abnormal quantity in the blood of persons labouring under gout, and in chronic cases even during the periods of remission. This certainly is a most important fact should further experiment bear it out. A point also worthy of note is, that after an explosion of gout the uric acid in the blood is much diminished, the gouty inflammation seeming to have the power of destroying it.

Uric acid existing in such quantity in the blood, the conclusion might easily be arrived at that the urine must also contain it in excess, and this idea has some colour lent it by

the occurrence of brick-red sediments in the urine, and the liability of such patients to nephritic gravel. From a careful analysis of the urine in many cases Garrod holds that not only is uric acid not increased in amount in the urine, but in most cases much diminished. Taking the normal quantity excreted in health as eight grains in the twenty-four hours, the average amount in the cases examined during the fit of gout was only 3.62 grains, and in chronic gouty cases it was at all times deficient. The urea in such instances was, as a rule, normal in amount. It would seem then that the kidneys retain the function of excreting urea, while the excretion of uric acid is notably impaired. He refers to the frequent occurrence of albumen in such cases, and looks upon the renal affection as functional at first, a structural lesion being ultimately induced.

A long chapter is devoted to the morbid anatomy of the disease on the basis of many dissections, and the conclusion arrived at is that gouty inflammation, however slight, is *invariably* attended by the deposition of urate of soda, a circumstance which clearly demarcates this from all other joint affections. He goes a step further, and states that this deposition of urate of soda and gouty inflammation stand in the relation of cause to effect, *i.e.*, that the deposit takes place first and induces the inflammatory action. This statement, we think, needs further proof, at least it does not hold good for all cases. The urate of soda is an interstitial deposit in the fibrous and ligamentous tissues which are possessed of little vascularity. Cruveilhier long ago discovered deposits in the bones of gouty subjects, which he thought to be urate of soda; but Garrod, after many careful observations, is inclined to believe that they are composed of phosphate of lime, and that urate of soda in such situations is of the rarest occurrence.

In the inquiry into what is the cause of gout, the whole question of heredity is brought under notice. All agree that hereditary predisposition is a very potent factor in the production of the disease, some, like Cullen, even going the length of considering gout entirely hereditary. The statistics given show that in 75 per cent. of the cases, there were gouty antecedents. But there are many accessory conditions that develop the latent tendency or even beget the disease, and among these alcoholic drinks take a front rank. Garrod formulates his conclusions on this question thus—

1. Dilute alcohol, in the form of distilled spirits, has little

tendency to produce gout, at least in those not predisposed.

2. Alcohol, when in combination with other substances, as in wines and malt liquors, becomes a potent cause of gout.

3. Neither the acid, sugar, nor any known principle contained in these liquors, can as yet be proved to impart to the alcohol its predisposing influence, for wines the least acid, and liquors the least sweet, are often among the most baneful.

The influence of diet, indigestion, &c., are fully expounded and illustrated by cases.

The treatment is detailed at great length. Colchicum is held up as a specific, its *modus operandi* being quite obscure, but the author thinks it is not in virtue of its purgative or diuretic action, and he cannot assert that it has any influence upon the excretion of urea and uric acid. The last statement is contrary to Sir R. Christison's observations, which, however, were on a much more limited scale. Iodide of potassum, guaiacum, and alkalies are also favourably mentioned, and the action of the salts of Lithia are, as might be expected, gone fully into, the author, however, disclaiming any notion of their replacing colchicum. They are chiefly useful in chronic cases, and seem to act as diuretics and in rendering uric acid more soluble. Diet, regimen, and the employment of mineral waters close the chapters on treatment.

The rest of the book is occupied with the consideration of rheumatic gout, which Dr Garrod thinks would be better styled rheumatoid arthritis. He states that no urate of soda is found deposited in such cases, and the lesion is essentially different from gout; uric acid does not exist in the blood in abnormal quantity, there is little hereditary tendency, it occurs at any age, and is as prevalent among women as men. He does not offer a strong opinion, however, as to the nature of this disease. As to treatment, he is not very sanguine. He says that increasing experience leads him to take a more favourable view of its amenability to treatment, if patients would only submit to a course of steady restorative treatment, instead of being advised by injudicious friends and quacks. Any treatment after the disease has got a hold is, as a rule, unsatisfactory, and the reproach which Ovid long ago brought against medicine, in regard to gout, applies with equal force to this affection,

“Tollere nodosam nescit medicina podagram.”

We have not attempted to criticise this work. We have been content to indicate some of the author's more prominent views. Gout is fortunately very rare in Scotland, an immunity which some have attributed to the whisky-drinking propensities of the people. In hospital practice, at all events, it is rare to a degree.

We recommend this edition to our readers, satisfied that it contains every information on the subject, and will maintain its place in the front rank of works on gout.

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III.—A HANDBOOK OF THERAPEUTICS. *By* SYDNEY RINGER, M.D., *Professor of Therapeutics in University College, Physician to University College Hospital.* Fifth Edition. London: H. K. Lewis. 1876.

WHEN a book on any branch of medical science reaches the fifth edition we may be sure its merits are neither few nor small; such is the case with the present volume. Page after page contains numerous observations of great practical value both to the advanced student and practitioner, all bearing steadily and directly on the phenomena and treatment of disease. Some of these observations are of course transcripts of the work of others, but many are records of the author's own experience, and are obviously written with great care and fidelity. It is a commendable feature in the work that, as a rule, all speculative explanations as to the mode in which medicines cure disease have been eliminated, as these would tend to detract from its practical nature. The symptoms and groups of symptoms which suggest the employment of a medicine are faithfully delineated, and the indications as to how the medicine should be administered show that the writer in most cases is speaking from ample and matured experience. The administration of some medicines in frequently repeated small doses, as recommended by Dr Ringer, seems to us to accord with physiological principles; in practice, however, we fear that the natural repugnance which most people, especially children, have to medicines, the nauseous taste of many drugs, and the constant attention which would be needed in order to give each dose at the proper time, will be great obstacles in the carrying out of this method.

The chapters on bromides, cinchona and its alkaloids, digitalis and its preparations, aconite, opium, iodine, mercury, iron, strychnia, chloral, chloroform, alcohol, acids.



alkalies, cold and hot baths, poultices, fomentations, and enemata are worthy of special commendation, as they seem to contain not only exactly the kind of information, but also that arranged in a form most suitable to be utilized by the scientific practitioner.

The book has also a very ample and excellent dietary for invalids, which is scarcely second in importance to the administration of medicines. Amongst other formulæ of this description we find one for "stewed eels." We cannot help thinking that the patient who could eat this preparation has little need for the doctor, but that may be from our ignorance of the dietetic qualities of this ichthyological species, also from our proverbially bad Scotch cookery. However, we give the recipe as it stands, hoping it may increase the number of eelophagists, though we are sure we will never be one.

**STEWED EELS.**—One eel (length not stated), half a pint of strong stock, two tablespoonfuls of cream, half a glass of port wine, thickening of flour, a little cayenne. Wash and skin the eel, cut it in pieces about two inches long, pepper and salt them, lay them in a stewpan, pour the stock over, and add the wine. Stew gently for half an hour, lift the pieces *carefully* on to a very hot dish, and place it by the fire. Strain the gravy, stir into the cream sufficient flour to thicken it, mix with the gravy, boil for two minutes and add a little cayenne, pour over the eels, and serve. Sometimes the addition of a little lemon juice is gratifying to the palate.

Here is a recipe for porridge:—

Put a quart of milk into an enamel-lined saucepan. When on the point of boiling scatter in by degrees half a pound of *coarse* oatmeal, *stir until the mixture thickens*; when thickened let it continue to boil about twenty minutes. The porridge can be made thick or thin according to taste. It can be eaten as it is, (ugh!!) or with the addition of salt, sugar, jam, marmalade, &c. Shade of Burns! What a travestie on your "Halesome parritch, chief of Scotia's food." We hope Dr Ringer will not advise any student or patient to attempt porridge after this fashion, or certainly the first attempt will be the last.

The book contains an extremely valuable "Index of Diseases," arranged alphabetically, with indications for treatment. This of itself forms an interesting synopsis of the whole work, and shows in the briefest possible space the chief means for combating disease.

We think the index might be extended in a future edition. We looked in it for spt. eth. nit. and liq. ammon. acet., and some other drugs, but find they are wanting.

We do not like the term "urinary water," p. 12, nor the word "choreac," p. 15, but this is probably a misprint. At page 47 the chapter on "carbonic acid gas" begins, while at the top of the page it is headed "carbolic acid gas."

This edition will fully sustain the deservedly high reputation which the work has already earned.

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IV.—FRENCH MEDICO-PSYCHOLOGICAL LITERATURE: ANNALES MÉDICO-PSYCHOLOGIQUES, from November 1874 to January 1876. Retrospect, with Observations, by Dr ALEX. ROBERTSON.

*"Observations on the state of the eyes in general paralysis."* By Dr *Mobèche, Asylum of Ville-Erhard.*—The condition of the pupils is the subject of a large portion of this paper, but before quoting the author's views we shall make a few observations of a general nature respecting pupillary alterations in diseases of the brain. It can scarcely be said that the state of the pupils in this class of diseases, inclusive of insanity, is so unvarying as to afford reliable indications for diagnosis or prognosis. This is at least true of the majority, for, unless in the case of one or two by no means strict exceptions, we can hardly point to lesion of any particular locality, that constantly or nearly so, determines a uniform alteration of the pupils. The exceptional cases are sanguineous effusion into or in the neighbourhood of the pons varolii, which is usually accompanied by contraction, and a similar condition of the thalamus opticus or corpus striatum when dilatation of the pupils is the ordinary symptom. A decided inequality may even be observed between the pupils when no important organic change is present in the brain. Thus, for example, serious cases of insanity occasionally occur where this discrepancy exists, which ultimately terminate in recovery. But, though this is true, I by no means intend to convey the idea that an inequality of the pupils is of no consequence in its bearing on the prospect of recovery; on the contrary, where it shows itself, and particularly when it is a steady and marked feature in a case, the prognosis becomes more grave. All that I wish to guard against is the impression that the symptom is indicative of irremediable disease. Perhaps, too, it may not be superfluous to recall the fact that there is often a very marked difference be-

tween the pupils of different persons in a state of perfect health; some have small pupils, some have large ones, and some have them of medium size, all being within the standard of health.

Restricting our observations to general paralysis, we remark that though a uniform alteration of the pupils does not exist, it is fully established that some deviation from the normal condition is almost always present. Thus, in this country, Austin found only two cases in a hundred in which the pupils were unaffected, and Dr Nasse, of Siegburg, in a hundred and eight cases met with only three in which they were normal. The association of this pupillary irregularity being so constant, it follows that in any case where the diagnosis is doubtful, its presence acquires an important significance, even though it cannot be said that its absence negatives the existence of the disease in question, which may perhaps be provable through other symptoms.

Dr Mobèche in his paper discusses more minutely the state of the pupils in this disease than any previous writer. He remarks that besides their inequality, a careful examination will show that the contour of the iris has seldom its normal regularity. Its contractility is also very often modified, it is usually sluggish, and sometimes nearly immovable. When the pupil is contracted its form is almost always irregular, angular, and elongated in one direction, not unfrequently like an ellipse, the long diameter of which is directed downwards and outwards. Sometimes the deformity is still more marked; the pupil has lost almost completely its circular form, and has become quadrilateral or triangular; occasionally it does not occupy the centre of the iris, in these cases being displaced inwards. Further, the condition of the pupil is subject to frequent variations. From a state of contraction it may pass to one of dilatation, which, however, is never very considerable. These changes, he remarks, are observable particularly at the commencement of the malady.

Proceeding to the visual function, the author records the results of an extensive series of examinations by test-types. From these it appears that in the early stage of the disease in most cases the patients fail to read so well with one or both eyes as they should do. No mention is, however, made of ophthalmoscopic observations. The state of the optic disc and retina is, nevertheless, of much importance, and has been the subject of careful inquiry by many observers, both in this country and abroad. In most cases there is well marked disease of these parts, at all events where the paralysis has advanced to the second stage. I had, however, a patient under me recently in a very pronounced form of the disorder, the fundus of whose eyes was at least not

seriously affected. There may be a preliminary stage of congestion of the discs, but this in many cases is by no means well marked, and rarely lasts long, being soon displaced by white atrophy, with wasting of the vessels. Microscopic observers describe an increase of the connective tissue of the nerve, and a wasting of its fibres. This condition corresponds with what is found in the cerebro-spinal centres in general paralytic disease.

*Melancholia successfully treated by large doses of the muriate of morphia subcutaneously injected.*—M. Voisin narrated a case in detail (at a séance of the Medico-Psychological Association,) which recovered under this treatment. The patient was a woman, age 36, and her insanity had been upwards of two years' standing when the treatment was begun. Besides deep general mental depression there were illusions and hallucinations of several senses. Beginning with injections of three milligrammes, the dose was rapidly increased day by day till it amounted to twenty-four centigrammes (about  $3\frac{1}{2}$  grains). This produced prolonged nausea, but at the same time the delusions were shaken, and she received her husband well, which she had not done previously. The strength of the injection was now reduced to 243 milligrammes in the morning, and 120 in the evening. These injections were followed after some minutes by a bright redness of the face, which lasted two hours, and vomiting also occurred sometimes. From this time forwards the progress of the case was most satisfactory, and the patient was dismissed cured in about a month. M. Voisin refers to the intensity and number of the morbid phenomena in the case, and remarks that the amelioration and subsequent cure were obtained only after the production of the physiological phenomena due to morphia, which consisted in redness of the face, with general diminution of arterial tension, as shown by the sphygmograph, and vomiting. He considers that undue tonicities of the vessels, amounting to spasm, which he believes to be the anatomical cause of certain forms of insanity, had in this case been overcome.

Doubtless, there is great probability that the cure was due to the treatment pursued, but it is to be observed that recovery occasionally happens in cases of as long or even longer standing, where other and less hazardous modes of treatment have been carried out. A noteworthy point in the case is the very large dose of the drug administered hypodermically without inducing dangerous symptoms.

*Researches in alcoholic epilepsy, by Dr Drouet.*—From February, 1868, till July, 1872, no fewer than 529 cases of insanity caused by alcohol had been under Dr Drouet's observation in the Asylum of Ville-Evrard, 442 of which were men,

and 87 women. 54 of these patients, that is to say, a little more than a tenth, had suffered from convulsive seizures at one time or another of their maladies, and careful investigation showed that they were due to no other cause than alcoholism, acute or chronic. With respect to the age of the patients, the striking statement is made, that amongst 96 alcoholics, from 20 to 30 years of age, only 2 were epileptic, being 1 in 48, while of 188 between the ages of 30 and 40, 24 were affected, or about 1 in 8. The explanation of this comparative immunity during the earlier decade will be afterwards referred to. There is a very great difference between acute and chronic alcoholism in their respective liability to convulsive seizures. They are rare in the acute form, and rarer still in accidental drunkenness, but even the latter is not absolutely free from them, and an illustrative case is recorded. Still, the observation holds true, that epilepsy does not make its appearance as an initial symptom, but rather as a late symptom of alcoholic poisoning. Long before experiencing convulsions, inebriates pass through the different symptomatic stages of chronic alcoholic intoxication. In some cases the disorder had assumed the gastro-hepatic form, dyspepsia, slight jaundice, &c.; and in some the nervous form, temporary delirium, terrifying hallucinations, feeling of fear, nervousness, sleeplessness, &c. Almost all had at one time or another some difficulty of speech, muscular trembling, creepings, cramps, partial hyperæsthesias or anæsthesias. M. Drouet has not found that the drinkers of absinthe presented any peculiarity worthy of attention, and it does not appear that they manifested a convulsive tendency more than other alcoholics. In this experience he is opposed to most observers, and notably to M. Magnan, who holds that pure alcohol has scarcely any tendency to produce convulsions. M. Drouet joins issue with him on this point, and while conceding that absinthe undoubtedly very readily gives rise to convulsions in dogs, holds there is nothing to show that the same event happens in the human subject. In support of this statement, he observes that he had interrogated minutely 38 individuals of both sexes, who, after having avowed their excesses in drinking absinthe, had assured him that they had never experienced the smallest epileptic or epileptiform seizure; nor had he been able to find in any of them indications of bit tongue or other symptoms of unperceived attacks. After citing several cases, to show that absinthe drunk to great excess had not induced convulsions, he remarks that they prove not that it is never the cause of such seizures, but that it is far from determining them constantly, or even habitually. The general conclusion arrived at on this point is, that the disposition to con-

vulsions is dependent on the amount of alcohol imbibed, modified, of course, by the idiosyncrasy, the state of system, &c., of the individual. He agrees with M. Levy, that the particular action of alcoholic liquors is in accordance with the special constituents other than the alcohol which are met with in each liquor; but that these distinctive characters, being weaker and more evanescent, add to the effects of the alcohol without in any case dominating over them.

Our author now proceeds to consider epilepsy in chronic alcoholism. In general, unless from convulsive hereditary predisposition, or from rare idiosyncrasy, alcoholic convulsions denote that the brain has undergone a distinct morbid change under the frequent abuses of drink. This anatomical modification, which one may call preparatory, developing slowly, and requiring almost always many years for its production, we see rarely (as has been already shown, about once in fifty times) inducing epilepsy as a complication of delirium tremens in young people from 20 to 30 years of age. Endowed with organs still healthy, and particularly, with a nervous system whose histological integrity is as yet perfect, they can resist enormous excesses, or at least experience only temporary delirious phenomena from them. Later, on the contrary, the cerebro-spinal axis is found altered in them by the repeated bouts of drunkenness, and by the habitual contact of alcohol mixed with the blood, it becomes more susceptible in a pathological point of view, and susceptible after a special manner; that is to say, that the delirious aptitude which existed alone at first becomes associated with the convulsive tendency. This latter condition usually passes through three successive stages. First, most frequently there must be, in order to provoke epileptic convulsions, a considerable excess beyond the usual habitude. At this period the nervous system, although already compromised, has nevertheless retained the necessary force for resisting the doses of the poison to which it is accustomed, and it enters into revolution only under the stroke of congestive attacks provoked by an abnormal ingestion of alcohol. Second, later, in order that such attacks be reproduced, it suffices that the drunkards of whom we speak continue to drink with an intemperance relatively moderate, and without even going to the extent of drunkenness. Third, this susceptibility may increase still more. There exists, in fact, a group of patients, numerous enough, who, although shut up in asylums and absolutely debarred from obtaining any form of spirituous liquor, remain subject from time to time to these attacks, their epilepsy having become constitutional.

*Discussion on Aphasia.*—At a meeting of the Société Médico-

Psychologique, the question of aphasia was under consideration, and MM. Voison, Foville, Dailly, Baillarger, Delasiauve, Falret, and Lunier took part in the discussion. M. Foville narrated two highly interesting cases, which, as they were described briefly, we shall quote nearly in full:—"It is now some months since I had an autopsy of a lunatic who had resided during many years at the asylum at Quatre-Mares, without any symptom either of aphasia or hemiplegia. There could be no doubt of this, for this man laboured constantly in the garden, and he vociferated very plainly, using abusive and obscene language. At the autopsy I found an old fracture, with depression of the left parietal bone, and an extensive destruction of the cerebral substance, involving the whole of the Island of Reil, and extending backwards horizontally on the surface of the left hemisphere from the fissure of Sylvius to the extremity of the left occipital lobe. This loss of substance formed after the removal of the membranes a kind of distinct gutter, by comparison with the opposite hemisphere, which was intact. I estimated the capacity of the lesion at 33 cubic centimetres. In the second case the lesion was very similar, but aphasia and hemiplegia, obvious enough at first, had passed away." In his observations on the first case, M. Voisin said, "I remarked to the persons present at the autopsy, that according to the theory, which for my part I considered as very generally exact, a grave lesion of the Island of Reil ought to have determined aphasia, and I added that the absence of aphasia in that case appeared to me an anomaly very important to establish. Returning to my office I looked more carefully at the history of the patient, and learned by this study that a long time before his admission into the asylum this man, whose life had been very adventuresome, being in South America, had been assailed by brigands, who had left him for dead after many blows by the poniard, one of which had driven in the skull, and that following this wound he had been unable to pronounce a single word for a whole year. It was evident, then, that the cerebral lesion had really produced aphasia, as appeared to me ought to have been the case, and that, far from breaking the theory of Dax and Broca, it, on the contrary, strengthened it by a striking confirmation. Moreover, it presented a very remarkable example of the cure of aphasia and hemiplegia, which had certainly existed after the wound. But it will be observed, that if I had not found in the history of the patient this precious information respecting his previous life, I would have been led to give to his autopsy an interpretation quite erroneous. It is probable that an explanation of a similar kind may suffice in an analogous case, reported in Bateman's

treatise on aphasia, for that writer had observed the patient during only a short time before his death, and he does not appear to have had a complete knowledge respecting his antecedents."

This case, so ingeniously narrated by M. Voisin, reminds me of one described by Drs J. B. Tuke and Fraser in the *Journal of Mental Science, for 1872*, in which there was a very clear lesion of Broca's convolution, though the patient was not markedly aphasic, while under their care in the Fife Asylum. Even then, however, there was very obvious defect in language. The case was reported as distinctly opposed to Broca's localisation theory. Last year, however, Dr Fraser, one of the observers, informed me that the *early* history of the case had afterwards revealed that the patient had been clearly aphasic for some time after the seizure. Thus then the case, instead of opposing, lends support to a theory of localisation.

M. Baillarger, in the course of his observations on M. Foville's first case, said, "The brain, in short, has substitutionary powers. An Italian Journal recorded recently the case of a soldier, in whom the corpus callosum and septum lucidum were wanting, though during the patient's life this defect had not manifested itself by any apparent sign." The case was referred to in this *Journal* by Dr Knox, in his account of a specimen of defective corpus callosum shown to the Pathological Society in this city.

M. Voisin held that the term aphasia should be restricted, as in its original application, to cases in which there is a trouble or suspension of language, whether it be spoken, written, or pantomimic, but where intelligence is otherwise intact. This restriction is perhaps too absolute respecting the intelligence, as in many cases of undoubted aphasia the intellect is distinctly weakened, but we think it is a proper and necessary limitation respecting language, so as to exclude mere defect in articulation, which has no necessary connexion with aphasia, and often enough exists without it.

Respecting the mode of production of aphasia, M. Voisin observes, "It is necessary that the nervous cords, conductors of the will to the organs of speech, be affected in a certain way in order that this last function (language) should suffer. But these fibrils, setting out from the superior and lateral convolutions, follow a course which it is requisite to recall if one would explain certain facts of aphasia. In their progress towards the cerebral peduncles they pass close by the convolutions of the insula and the third frontal, penetrating



thus into the corona of Reil, and at last into the corpus striatum. The number of fibrils, too, entering into the constitution of the peduncular expansions is considerable:—it is in these fibrils that we should seek those that are devoted to the motor organs of speech. In all cases, if the convolutions of the insula and third frontal are so often involved in the pathology of aphasia, the reason of it is, such at least is my opinion, that they are on the course of these nerve fibres which Luys has called cortico-striate. The explanation is the same for the corpus striatum, since these fibres pass through its thickness." He further remarked, "In many aphasics I have found in these conducting fibres lesions abundantly sufficient to explain aphasia." This exposition was received with approval by the eminent authorities who took part in the discussion.

Perhaps the writer of this retrospect may be excused for observing that the view of aphasia above stated, namely, that it consists in a lesion of conducting fibres, is exactly the one which he propounded in the year 1866, at a meeting of the Medico Chirurgical Society in this city, and has since then supported in communications published in various medical journals.

"*On travelling lunatics:*" by Dr A. Foville, Jun.—The writer of this paper does not seek to elevate the peculiar disposition to travel from place to place into a special form of insanity, but he regards it as a distinctive feature in some pathological states of the mind and one worthy of consideration. He first of all distinguishes four classes of lunatics in whom a wandering tendency is observable:—1st, Certain imbeciles who lead a vagabond life; 2nd, Dipsomaniacs, who on the access of their paroxysms quit their houses in order to plunge into the mire of social depths, and continue there so long as their attacks last; 3rd, Epileptics, who execute sudden and unconscious flights; 4th, Dements, who wander often at much hazard to themselves, but without motive. Putting these aside, he proceeds to describe another class, which form the subject of his paper. They are specially to be found in ports of embarkation, and M. Voisin observed them more particularly at Havre. They undertake long journeys, by reason of clear and well-defined ideas. They all labour under more or less of melancholia, with hallucinations. They belong to two groups: in the one there exist only ideas of persecution; in the other, ideas of grandeur are associated with the delirium of persecution. These last travel in strange countries, in the hope of obtaining there

the realization of their chimerical ambition, and of finding the justice that they imagine is denied them at home.

A Yankee under my care at present illustrates the first of these groups. His illness seems to date from the battle of Bull's Run, during the American war. He maintains that he fired two or three shots too many on the northern side at that battle, and that ever since then he has been persecuted by unseen tormentors. To escape them he went from place to place in America, then to France, and ultimately came to this country; but everywhere his persecutors followed him. Arriving in Glasgow, he bethought him of applying to the Sheriff for protection, and accordingly sought an interview with that functionary. His insanity was then sufficiently obvious, and so, on due medical enquiry and certificates, he was sent to the City Asylum. The second group is illustrated by a young woman, who was recently removed from the same asylum to her own parish, near London. She imagined herself a princess, and at the same time supposed that she was spoken of in disrespectful terms in churches and theatres. Instigated by this travelling propensity, she went to Belfast, and then came to Glasgow, hoping that her claims would be conceded somewhere. Shortly after her arrival in this city, her funds became exhausted, and when the hotel-keeper asked payment of his bill, she referred him to the authorities, who she imagined had a large amount of money belonging to her. Her mental derangement was now established, and she was sent to this asylum.

*Locomotor ataxy with mental disorder.*—M. Rey, on the staff of the Asylum of St Aune, contributes an excellent paper on locomotor ataxy associated with mental disorder. Referring first to the literature of the subject, one finds, he remarks, (1) that in cases of simple locomotor ataxy there is integrity of the intellectual faculties; (2) that it may be complicated with diverse troubles of the intellect, verging from slight weakness to delirium the most complete; (3) that the most frequent complication is with general paralysis. He then narrates no fewer than nine cases in which one or other form of mental disorder existed along with locomotor ataxy. Three of them were general paralytics. The ataxy of the lower extremities in them was the primary condition, the paralysis being an after event. The latter obscured considerably the ataxic phenomena and progressed when the primary disease was apparently stationary. Of the other six, one was melancholic, one suffered from dementia, with maniacal paroxysms, in one a

transitory delirious state occurred, and in the remaining three there was merely intellectual feebleness. There was nothing unusual in these cases, either in the symptoms of the mental disorder, or in the features of the ataxy. When the mental disorder was either cured or relieved, the ataxy continued its steady march without any corresponding improvement.

*Erotism, with lesion of the cerebellum: by M. Hopital, Physician to the Asylum at Clermont-Ferrand.*—The patient was a female, age 34, and the erotic mania lasted a couple of years, ultimately causing death. At the autopsy the only important pathological change was in the right lobe of the cerebellum. A little behind and below the centre of this lobe, a portion as large as a hazel-nut was notably softened; the cerebellar substance there was in a pulpy state. The case is worthy of consideration in relation to the old ideas of the functions of the cerebellum.

Besides the papers to which we have referred, there are others of great merit, and particularly one "On general sensibility, and its alterations in melancholic disorders," by Dr Semal, of the Asylum at Mons, to which the prize Aubanel was awarded; but as they have rather a special interest for physicians devoted to psychological medicine, we shall not quote them in this journal. Moreover, Dr Semal's work is not suitable for analysis, and would require to be read in its entirety in order that proper conception of it might be formed.

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## Public Health Department.

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DEFECTS IN POORHOUSE ADMINISTRATION: FROM A MEDICAL POINT OF VIEW.

By WALTER HUNTER, M.B., *Mearns, Late Assistant Medical Officer, Barony Poorhouse, Barnhill, Glasgow.*

AT the present time, when there is so much talk about matters connected with poor law, I have thought it not an unfit opportunity for bringing before the public opinions which I have formed on the subject. the result of observa-

tion and experience during a somewhat lengthened residence in one of the largest poorhouses in Scotland. I feel constrained to make this matter public, as it is one of great importance, not only to the poor of the country, but also to those whose duty it is to aid in supporting their poorer brethren. I am also profoundly impressed with the belief that the present method of poorhouse administration is in many respects bad; and the object of this paper is to show in what respects the administration is defective when applied to one department at least of the poorhouse, and with all due modesty, to point out in what direction improvement is to be sought for with hope of success.

I may mention at the outset that I intend speaking of in-door relief only, *i.e.*, the relief afforded to our pauper population by admitting them into the poorhouse, as it is of this branch of the poor-law system I have had experience.

I have reason to believe that the public in general have very hazy ideas regarding the true nature of the poorhouse and its workings. The knowledge which they do possess on this point is derived for the most part from beggars and tramps, whose story is too often exaggerated and unreliable. These invariably give the poorhouse a bad name, not so much because they have learned from experience that it deserves it, but more for the sake of eliciting the sympathy of their hearers, and in this way, by "working on their feelings," strengthening their claims for charitable assistance. The result is, that it is not uncommon to hear the unenlightened public speak with the greatest horror of poorhouses, and yet when questioned they know nothing at all about them, except, perhaps, that the inmates are fed on porridge and sour milk, and that the men are separated from their wives during their residence in the house. This erroneous impression, often coloured and exaggerated, no doubt, is made good use of by those itinerants to whom I have referred, in exciting the sympathy and compassion of those who choose to listen to their story. It is only, in my mind, those who have had experience in the practical management

of those institutions who are fitted for giving a correct opinion as to their utility.

Speaking in a general way, I cannot, as will be afterwards seen, say very much in favour of the present system of in-door relief, but I at once allow that there are hundreds of our old and friendless poor in Glasgow alone to whom the poorhouse is of the greatest benefit, and whose fervent prayer, I make no doubt, is "Thank God for this provision for a friendless old age."

The poorhouse is divided into three departments—(1) The Hospital Wards; (2) the Infirm Wards; (3) the "Turn-out" or "Ordinary Wards." Every person on admission is examined by the medical officer, whose duty it is to order applicants to their respective departments. Those suffering from sickness and disease are sent to the hospital; those suffering from old age and its concomitants are sent to the Infirm Wards; while the "turn-out" or "ordinary" wards are reserved for those who are in good health, but who, from destitution, want of employment, or other cause, find it necessary to seek in-door relief. This gives a very general idea of the component parts of the house. Of the Lunatic Wards I take no notice at present. Much might be written to show that grave defects exist in each of these departments. To enter into a consideration of the poorhouse in its entirety would occupy too much time and space, and I therefore propose to confine my remarks chiefly to one department—viz., the "turn-out" or "ordinary" department. I propose, then, to confine my remarks *to the consideration of the class, including the children, who occupy the ordinary wards of the poorhouse, with special reference to those of that class who are entitled to be called "deserving" poor. All children are of course considered as deserving.*

It will be necessary to bear this restriction in mind, for these wards (being open to all paupers who choose to become chargeable) contain at all times some characters of the worst description—idle, profligate vagabonds of both sexes, whose claim upon the poor-rates no one for a moment could conscientiously advocate. We consider the case of our

“deserving poor,” including the children. By “deserving poor” is meant all those who have been compelled to seek relief from those various causes, all of which may be fitly included under the head of “*stress of circumstances.*” I can, perhaps, in the best way convey to my readers the meaning attached to the term “deserving” by giving one or two cases as examples of that class, whose claim to parochial relief I would strongly advocate.

*Case I.*—J. W., aged 58, a calico printer. Has always been a steady, respectable man, and his appearance and behaviour during his residence in the poorhouse go a long way to prove the truth of this statement. He says that during his whole life he never lost a day’s work from drink. On going to his usual employment one morning some months ago he stumbled over a wire on a railway bank, fell and dislocated his left shoulder. He went to a doctor, who pronounced the injury to be nothing more than a bruise. This accident unfitted J. W. for his work, and it was only when examined by Dr Wright and myself, on his admission to the poorhouse, that the true nature of his injury was discovered, too late for effecting a reduction of the dislocated limb. Now, here is a man who, I believe, has all his life been a respectable, well-doing person, but who, on account of an accident, coupled with the malpraxis of a country surgeon, is unfitted for following his usual avocation. Apart from the deformity arising from the unreduced limb, he is a hale, strong man, anxious to get some light employment, such as a gateman or timekeeper, but who, for reasons which will afterwards be seen, is unable to better his present condition as a pauper.

*Case II.*—Mrs H., admitted with her five children to the poorhouse in September, 1875. Since her marriage, the bane of this woman’s life has been a husband who, although not a bad man when sober, became a reckless villain when under the influence of drink. At the last Autumn Circuit Court he was sentenced to seven years’ penal servitude for robbery. For three weeks after her husband’s imprisonment Mrs H., with her children, remained outside, till all

the household articles being sold or pawned in order to keep life in, she was compelled to seek relief, and was accordingly admitted to the poorhouse. Mrs H. has, I believe, always been a steady, respectable well-doing woman, of good moral character. She has never drank nor been in prison, and all her children were born in wedlock. In addition to her household work and the rearing of her children, she received work as a "bobbin winder" into her own house, by which she realised about three shillings per week, which sum was reserved for the house rent. When her husband was at work three of the children were sent to school. I consider this woman with her children to be "deserving poor," and that they should be treated accordingly.

*Case III.*—Isabella A., aged 65, admitted to the ordinary wards about two years since. This woman's history, which is too long to narrate, is in my possession, but it may be said to be, after her husband's death, one long uninterrupted struggle by a respectable, pushing widow woman to educate her two boys (now long since dead), and to maintain her own respectability. She was for many years a valued and faithful servant in one of our best known city restaurants. A badly varicose state of the veins of her legs prevented her from further maintaining herself, and necessitated her admission to the poorhouse. I have had much personal experience of this old woman, and can testify to her upright Christian character.

These are illustrations, and they could be easily multiplied, of what one is justified in calling the "deserving poor;" and yet, strange to say, they are no better cared for than the worst characters who enter the poorhouse. The qualifications entitling them to the name "deserving" are not recognised by the present poor-law. In all cases where we find bodies of people aggregated together, there we also find individuals of good as well as of bad character. It requires no very close observation by the unbiassed inquirer to discover that even in the ordinary wards of a poorhouse such is the case. In the Barony Poorhouse this, to my mind, is pre-eminently so; and yet,

practically, this fact has been overlooked in the framing of the Poor-law Act. It is monstrous to think that all should be considered alike and treated in the same manner; that the widow and the orphan should be placed in the same category as the thief and the ne'er-do-weel. Is it not a miscarriage of justice that our innocent children, our well-doing destitute wives and deserving widows, who have been compelled, much against their will, to seek the shelter of the poorhouse, when all other means of support have failed, are placed on admission on exactly the same platform as those vicious creatures who make a convenience of the poorhouse, and whose lives have made them familiar with nothing so much as with sin and immorality?

There is in this system no distinction between voluntary and involuntary pauperism; no sifting of the tares from the wheat, no incentive for well-doing on the part of our friendless poor, who in the time of want have nothing but the poorhouse to depend upon. Deal by all means as hard as you like with the lazy and indolent pauper, who prefers the poorhouse fare, bad as it is, to bread honestly earned by the sweat of his brow; punish as severely as the law will permit the vagrant and the drunkard, who make a convenience of the poorhouse, after spending their ill-gotten gains—too often the result of thievery and imposture—in the dramshop; but surely towards our deserving poor and their children more charitable measures should be adopted. Is it right that these should be compelled to subsist on the very same fare, and be liable to the same restrictions as those vicious persons to whom reference has just been made? And yet such is the case. The practice of not recognising any class distinction amongst the inmates of our ordinary poorhouse wards is, to my mind, a fundamental error in the present arrangements under the Poor Law.

Let us now descend from generalities to particulars, and see how our deserving poor and our poor children are cared for under the present system. We shall consider (1) the diet, and (2) clothing. I would remark here that what is said under these different heads applies specially to the children.



## ENUMERATION OF DIETS.

Diet No. 1.—*For infants under two years of age*, consists of eight ounces white leavened bread; or seven ounces of meal, and one pint imperial of new milk daily.

No. 2.—*For children from two to five years :*

Breakfast—Meal,  $3\frac{1}{2}$  ounces; new milk (sweet),  $\frac{1}{2}$  pint imperial.

Dinner—Bread, 5 ounces; broth,  $\frac{3}{4}$  pint imperial.

Supper—Meal, 3 ounces; new milk,  $\frac{1}{2}$  pint imperial.

No. 3.—*For children from five to eight years :*

Breakfast—Meal, 4 ounces; milk (butter),  $\frac{3}{4}$  pint imperial.

Dinner—Bread, 6 ounces; broth, 1 pint imperial.

Supper—Meal, 3 ounces; milk (butter),  $\frac{1}{2}$  pint imperial.

No. 4.—*For children above eight years, and "ordinary ward" adult inmates :*

Breakfast—Meal, 4 ounces; butter-milk,  $\frac{3}{4}$  pint imperial.

Dinner—Bread, 8 ounces; broth,  $1\frac{1}{2}$  pints imperial.

Supper—Meal, 4 ounces; butter-milk,  $\frac{3}{4}$  pint imperial.

The adults in the "ordinary ward" population who are workers are allowed, in addition to the foregoing No. 4 diet, four ounces of boiled meat. This addition is, however, of no value, for the meat is very frequently so fat that the paupers cannot use it. In fact, the lean meat is picked out for the purpose of making up one of the diets used in the hospital wards.

Looking at the various articles which enter into the composition of these diets, one sees little to find fault with. Medical men are agreed that porridge and *sweet* milk, with light broth or soup, with bread, forms the very best diet for

children; and yet, I am convinced of nothing more strongly than this, that the diet consisting of these articles, as used in the poorhouse, is not only non-nutritious, but is wrong in principle. For the older children the diet is objectionable for three reasons—(1) because butter-milk is used instead of sweet milk; (2) because of its sameness; (3) because of its preparation.

The first objection is easily got rid of by substituting sweet or even skimmed milk for butter-milk. The latter acts very frequently as a purgative to both adults and children, especially when taken continuously with porridge. 2. It would be beyond the scope of this paper to prove on theoretical grounds that a change of diet is necessary for the maintenance of sound bodily health, but I would submit that the changes of diet, so instinctively practised by all to whom such changes are possible, afford strong evidence that such is really the case. A sameness of diet causes, as I have had ample opportunities of noticing, a disgust at and loathing of the articles of food used, which leads to an inability to consume and digest them.

Quoting from "Parkes' Practical Hygiene:" "It is not enough to give the proximate dietetic substances in proper amount, variety must be introduced into the food, and different substances of the same class must be alternately employed. . . . Sameness cloy, and with variety more food is taken, and a larger amount of nutriment is introduced. . . . In the case of children, especially, a great improvement in health takes place when a variety of cooking is introduced, and by this plan, among others, Dr Balfour succeeded in marvellously improving the health of the boys in the Duke of York's school."

From my own experience of these diets, I could give instances of children admitted from the outside to the ordinary wards in good health, who after a few days or weeks' residence in the poorhouse, began to suffer from diarrhœa, great thirst, and general falling off. When brought to the dispensary for advice, the mother or guardian of the child always, and I believe correctly, attributed the child's illness

to the diet. Again, I could give instances of children dismissed plump and well from the hospital, and transferred to the ordinary wards, readmitted to hospital in a week or two, with their diarrhœa, scab, boil, or ophthalmia as bad as before. This I attribute entirely to the diet, because the hygienic surroundings of the ordinary wards are not inferior to those of the hospital wards.

The broth and the porridge, especially the latter, are in my opinion insufficiently boiled, and are prepared in too large quantities. There is, I maintain, exactly the same difference between well-boiled oatmeal porridge with sweet milk and half-boiled porridge and sour milk, as there is between a very good meal and a very bad one. I have not the slightest doubt that the dietary now under consideration is the chief cause of the diarrhœa, vomiting, and other intestinal disorders, from which so many of the poorhouse inmates, young and old alike, suffer. I have over and over again proved this to my own satisfaction, by merely ordering a change of diet, when all the symptoms very speedily disappear.

Struma and other diseases are greatly aggravated by an insufficient diet. In the poorhouse the diet is not adapted according to the strength and constitutional vigour of the child—all are treated alike. The diet prescribed may do tolerably well with a healthy, robust child, but the evil complained of is, that the weakly, tuberculous child is compelled to subsist on the same. I would ask any of my medical readers if they could possibly prescribe a diet better calculated to engender diarrhœa in a tuberculous child, than one consisting of half-boiled porridge and sour milk twice a day.

I quote from the Board of Supervision's instructions on this point—"Poorhouse authorities should bear in mind that while their first duty in the matter of diet unquestionably is to endeavour to maintain, as far as possible, the health of the inmates, it is also highly important that no unnecessary expenditure should be incurred, and that the diet of the healthy inmates should not be raised above that of the

labouring population of the country." Now, I think if what I have said be true, it must be allowed that the diet, as used at Barnhill, neither maintains nor improves the health of the ordinary ward inmates, but is prejudicial to health. As regards the latter clause of the above-quoted instruction, I give it as my most conscientious affirmation, that the children of the very poorest labourer in the land enjoy a more health-giving diet than our poorhouse children.

In the matter of dieting our pauper children, it ought to be the object of the authorities not only to endeavour to maintain the health of the children, but also to improve it. It should always be borne in mind that these children have, in many cases, inherited faulty constitutions. From the very fact of their being paupers, and consequently belonging to the lowest grades of society, this frequently must be so. The parents are often themselves the victims of disease hereditary or acquired, which in their case has been fostered and matured by bad food, impure air, ignorance of or inattention to the laws of health, personal excess, and other causes.

It is surely, then, both a duty and a binding obligation on those to whom the care and up-bringing of our pauper children have been entrusted, to place them under the most favourable circumstances for ameliorating, if not eradicating, the defects of constitution under which so many of them labour, remembering that it is not so much what is called a "hard life," as insufficient nourishment, which renders health feeble and delicate. By administering a diet sufficient in quantity, and nutritious in its nature and quality, we will not only make our young and innocent poor the possessors of that greatest of all boons—good health and sound constitutions; but we will likewise qualify them, when their time has come, to transmit a sound physical and mental constitution to their offspring. No one but the physician can thoroughly estimate how much can be done to correct young and faulty constitutions, by a rigid observance of the laws of health, one of the most important of which is a plentiful supply of good and nourishing food. I am of opinion that

the subject now under discussion is a strong factor in the propagation of hereditary pauperism. A prolonged use of the poorhouse diet, acting as it does in many cases on diseased constitutions, renders the children quite incapable of raising themselves above the pauper status.

#### CLOTHING AND TEMPERATURE.

The children who occupy the ordinary wards of the Barony Poorhouse are much under-clothed. I can best show this to be the case, by giving a list of the number and kind of the various articles of apparel. The infants under three months, who occupy the ordinary wards of the house designated by the name of "nurseries," are allowed flannels, but beyond this age no flannels are supplied. The following forms the wardrobe of those young infants:—(1) One flannel binder, (2) one flannel "barrie" coat, (3) one flannel petticoat, (4) one cotton gown. One change of garments is allowed to each child.

In the case of the older children (girls), the following complete their outfit:—(1) A cotton shift, (2) two petticoats—one plaiding and one druggel, (3) one thin cotton frock, (4) one thin cotton pinafore, (5) one flannel jacket (a recent addition), (6) woollen stockings, (7) leather boots. Except in the case of the shift, each girl has only "one suit of clothes." It becomes, therefore, necessary when any of the garments require washing, to do so when the children are in bed. The washing usually takes place in the ward where the children sleep. The garments are also dried here, and are ready for use on the morning. If the clothing were sent to the wash-house, several days would be required, and as the children have no change of clothing, they would require to remain in bed during this time. This is obviated by washing the soiled articles in the ward after the children's bed-time has arrived. The shift is, I believe, changed weekly, but the petticoats and stockings are not changed for many weeks together.

Boys' clothing:—One cotton shirt, a moleskin jacket, vest and trousers, one cravat, stockings, boots, and woollen cap.

A grievous and dangerous error in connection with this matter is that *the children are not allowed any increase of clothing in winter time.* I would like to speak cautiously but firmly on this point. The love of rearing young children in what is popularly called a "hardy" way, is as characteristic of the Scotch poor as it is of any other nation or class. Nor would I deprecate this method altogether. In some countries parents run to the opposite extreme and load their children with clothes, till they resemble nothing so much as little moving bundles. A system founded on sound common sense principles will be found the safest and best. I have, I think, satisfactorily shown that the clothing is decidedly scanty, while the practice of having no additional clothing in winter time cannot be too strongly condemned. "The short sleeves and bare necks of summer should be replaced when the cold weather begins by long sleeves and high-necked dresses, while cotton and thin stuffs generally should be replaced by articles of woollen or flannel texture." If this is necessary as a simple sanitary precaution amongst the children of the better classes, how much more necessary must it be in the case of our pauper children, who, when not at school or in their wards, spend their time in wandering about the long and draughty lobbies and staircases, which seem to form a necessary part of poor-law architecture.

In the case of the infants who occupy the "nurseries," matters are even in a worse condition. A glance at the articles of clothing allowed to those of such a tender age, leads one to the conclusion that the axiom "Heat is life to an infant" is either unknown or wilfully ignored at Barnhill. These babies with their mothers sleep in the ordinary wards (nurseries) of the poorhouse, but during the day they are located in what are called the "day nurseries," and this alternation of their abiding place is brought about in the following way:—

At seven o'clock morning the babies are carried from the sleeping apartments, where during the period of observation the thermometer was found usually to stand at from 56° to

58° F., to the day nurseries—a cold, damp, cheerless place, where the thermometer at this period was found on cold mornings to mark as low as 38° F. Here we find mothers, with infants of all ages, from three weeks to eighteen months, crouching around the new made fire, huddling closely together in order to keep up their animal heat. Here, then, we have infants taken from their comparatively warm sleeping apartments, carried across an open court, and deposited in an exceedingly cold and damp hall. Let it be borne in mind that this transference takes place between seven and eight o'clock morning, and in all sorts of weather; that the difference of temperature is sometimes such as I have indicated, and it must be allowed that I am not using too strong language when I say, in the words of a bold and fearless writer, that such a proceeding is “a direct invitation to disease, and a consequent gratuitous increase of an infantile sick list,” and, I might add, mortality.

For young children the temperature of their sleeping rooms should not be under 56° F., while the day rooms should be not under 58° F. At Barnhill, the thermometers placed by me in the “day nurseries” marked as follows. The following dates were not selected ones. The smaller of the two halls was a little warmer than its fellow:—

				No. 1.	No. 2.
1876.	January	8, 7	a.m.	Thermometer, 42°	46°
	„	„ 3	p.m.	„ 48°	50°
	„	10, 7	a.m.	„ 39°	42°
	„	14, 10	a.m.	„ 40°	44°
	„	15, 7	a.m.	„ 38°	42°
	February	3,	1.30 p.m.	„ 50°	53°
	„	7,	3.30 p.m.	„ 47°	48°

With the sudden changes from a not too high (56°) to a dangerously low temperature, can we wonder that the infantile mortality at the Barony Poorhouse is high, especially when we remember that changes of temperature which do not affect the adult may prove fatal to infants.

These day nurseries to which I have referred are two in number. No. 1 measures 28 by 17 feet, and contains 5783 cubic feet. No. 2 measures 31 by 17 feet, and contains 6371 cubic feet. I never entered these halls without being struck with their cold, cheerless atmosphere, and their utter unsuitableness as a place of habitation for tender infants. Besides the generally insanitary state and structural defects of these "day halls or nurseries," they are over-crowded to a shameful extent. On visiting them on the 3rd February, I found in No. 1 nursery no fewer than 18 women and 22 children, while on the 28th day of the same month, in this same nursery, I found, huddling together, 20 children and 16 women. Each person had, therefore, an allowance on these days of 145 and 160 cubic feet of air respectively. If it be borne in mind that the children are all either on the breast "or on the bottle," and that the frequent evacuations common to children do not of themselves tend to a healthy state of this atmosphere, it cannot be denied that for the sake of the well-being of such a number of young lives—illegitimate for the most part though they be—immediate steps should be taken by the Board to remedy what must be characterised as a disgraceful state of affairs.

Let us now see how the infantile mortality is influenced by the operation of these agents.

During the year 1875 there were 46 children born in the poorhouse. During the same period there died under twelve months no fewer than 34 children. Of these 34 children who died, at least 11 were born, lived, and died in the poorhouse, *i.e.*, they were not taken outside by the mothers, so that the cause of death of these 11 children could not be attributed to anything outside the poorhouse walls.

The proportion, therefore, of the total deaths of children *born* in the Barony Poorhouse, under one year of age, to the total births in 1875, is 240 per 1000; *i.e.*, of every thousand children born and reared at Barnhill, 240 will die before completing the first year of life.

In the City of Glasgow during the same year (1875) the



proportion of the total deaths, under one year, to the total births, was only 160 per 1000. The Barnhill rate of infantile mortality was, therefore, one-half greater than the Glasgow rate. In making this contrast, it should be remembered, that in arriving at the Glasgow death-rate we take into account *all* children who died whether born in Glasgow or not, and many of them born in abject misery, poverty, and wretchedness, and reared by parents to whom the death of the child is often a direct gain. At Barnhill, on the other hand, we have a small community, located in a licensed house, and under medical supervision, on whom the agents operating to raise the rate of infantile mortality in all large cities do not, or at least should not, act. On *a priori* grounds, then, the rate of infantile mortality in poorhouses ought, I think, to bear favourable comparison with that of large cities. No further comment on this subject is necessary, the alarmingly high death-rate at Barnhill sufficiently proves that something is wrong.

There are other points connected with the care and upbringing of the children in the Barony Poorhouse which demand attention. Of these may be cited their *education* and *moral training*. However interesting and profitable it might be to discuss, at length, these questions, it is evident that not coming under the immediate attention of the medical officers, their discussion here would have no special weight, nor are the pages of this *Journal* a fit place to deal with matters which have no bearing on the physical welfare of the children. Suffice it to say, that as regards the former question of education, so long as the law exists as at present, it is impossible for any system of education to be carried on with any degree of success to the children, or with satisfaction to the teacher. In the education of the young close attention above all things is necessary, and yet in the case of large numbers of our poorhouse children close attendance is made impracticable. So long as the children are received into and dismissed from the poorhouse at the request of the parent or parents, a sound system of education becomes impossible.

As regards the question of moral training, the children are placed under the supervision of "warders," selected indiscriminately from the "turn out ward" population. Nor could we expect to find it otherwise, when we consider that the care of the sick and the aged in the hospital and infirm wards is likewise left to "warders" selected from the ordinary wards of the house. And let me here, in passing, declare my allegiance to those who have already protested against the practice in vogue in poorhouses, of employing paupers as sick-nurses. These are totally unfitted for the performance of the responsible duties of an hospital nurse, apart altogether from the fact, that they are, as a rule, careless, untrustworthy, and dishonest. In the case of sick patients, skilled nurses should be placed in charge, and although it would not be necessary that those who act as warders over the children should have any special training, still they ought to be persons of repute. Placed, as they thus are, under the supervision of persons, many of them evil disposed and of bad character, the children have no opportunities afforded them of being trained in those moral principles and virtues which tend, by their presence, to make the lives of our young people beautiful and fair.

From a consideration of the fact that the children are badly fed, imperfectly educated, and morally neglected, can it be wondered that in many cases they are morally wrecked. They know not the value of education or of principle; it is impossible for them to raise themselves above the pauper status, and many, from sheer force of circumstances, must, it is feared, help in after years to swell the ranks of our improvident, profligate, and criminal classes.

Let us now turn our attention to the adult paupers who occupy the ordinary wards of the poorhouse. When a person applies for parochial relief the inspector decides whether the applicant is a fit subject for relief. If he be, the inspector makes such allowance as he thinks necessary, either by granting out-door relief or an admission-line to the poorhouse. If the applicant be considered not a fit subject for relief, the application is refused. Now,

it is against the spirit of the Poor Law Act to allow relief to any applicant who is considered able-bodied, or, in other words, to any one who is able to maintain himself. All persons, therefore, who are admitted to the poorhouse are considered fit subjects for relief, and therefore their claim to such relief must be based on sickness, destitution, or inability from other cause to support themselves and their dependents.

By the Act of 1845, poorhouses were ordered to be built as an advance on the old alms-houses. They were considered to be very suitable for the reception of persons of indolent and profligate habits—the analogue of the “strang and wasterful” beggar of the fifteenth century. To those the poorhouse was applied as a *test*, in order that the poor-rates might not be devoted to the encouragement of idleness and vice. Those who were really of this class, *i.e.*, those who, though able, were too lazy to work, soon found the enforced system of discipline and labour so hateful to them, that they preferred their precarious life outside; and in consequence left the poorhouse, and in doing so, of course relieved the poor-rates of their cost of maintenance. This experiment was, and is still, called the “Poorhouse Test.” This test is very useful in its way, and has, no doubt, aided materially in diminishing pauperism; but what I wish to assert is this, that with the exception of the mothers of illegitimate children, there are very few indeed in the ordinary wards of the Barony Poorhouse to whom the poorhouse test is applicable. I have no means of knowing how many may be deterred from entering the poorhouse by the application of the test, but I am strongly of opinion, that judging from my experience of the Barony Poorhouse, the “strang and wasterful beggar”—or his modern prototype, the strictly idle and profligate pauper—is a rarity within the poorhouse walls.

With the exception of the mothers of illegitimate children and deserted wives, with families, the inmate of the ordinary poorhouse ward fit for a hard day's darg, is, with few exceptions, an anomaly. For this commendable

state of matters, we have to thank two things which I have already incidentally mentioned: (1) the fact that parochial relief is, or at least ought to be, granted to those only who are really fit subjects for relief; and (2) the application of the poorhouse test. Now, while parochial boards deserve to be commended for this state of matters, they deserve to be equally and unhesitatingly condemned for so long failing to recognise this very fact. They, no doubt, flatter themselves, and deservedly so, that the poorhouse belonging to their parish contains such a small number of really undeserving poor, and yet they act, as far as the ordinary ward inmates are concerned, as if they were not only undeserving but criminal. I am aware that what I have now said of the ordinary ward inmates may be denied by parochial authorities and poorhouse officials, but these I hold are not capable of forming a just opinion on the matter. There are plenty of adult paupers in the ordinary wards of the Barony Poorhouse, who, to the non-professional eye, appear fairly strong and healthy, but it is only when the stethoscope or other test is applied that one is convinced, not only of their entire inability to work, but of the impropriety of asking them to work. With the exceptions already made, the majority of the men and women who occupy the ordinary wards of our urban poorhouses, in my opinion, suffer from disease in some form or other, which, although not requiring, or not amenable to hospital treatment on the one hand, nor necessitating a residence in the infirm wards on the other, nevertheless renders them unfit for engaging in work sufficiently remunerative to enable them to sustain themselves. Amongst those persons I have often found chronic affections of the heart and lungs, degeneration of organs, paralytic affections, hernial affections, prolapse of uterus and bowel, partial blindness, loss of hearing, mental incapacity, &c., &c. If the Barony Poorhouse is a type of other large poorhouses, I believe the medical officers attached thereto will bear me out in this. Not unfrequently have I looked upon certain inmates of the ordinary wards as lazy, indolent, and able for

work, but had shortly afterwards reason to regret my want of charity displayed towards them, on discovering, when too late, that they really were suffering from incurable disease, and that death, though apparently far distant, was in stern reality, very near at hand: and yet those poor suffering ones, along with those who are really deserving, are treated in a manner which should have been long ago abolished. The diet allowed to them (see diet No. 4) is quite insufficient and incapable of improving their health, while the insufficient clothing and enforced confinement cannot be approved of. Many of our poor people I have known to enter the poorhouse with the intention of leaving it again as soon as they got strong, but these soon discover that under the ordinary diet of the house, their health deteriorates—instead of “getting strong,” they “lose ground.” Would it not be advisable in cases of this kind, and, in fact, in all cases except those known to be strictly undeserving, to give such a diet as would tend to an improved state of health and bodily condition, and thus enable our poor to regain that which many of them prize highly—a life of sturdy independence. Apart from all higher motives, I think as a mere pecuniary speculation, the matter is worth a trial, and I would now, in all humility, commend the idea to the grave consideration of parochial boards.

It now remains for us to see in what way we can best remedy the unhappy and very unsatisfactory condition in which our poorhouse children and deserving poor are placed. Is there no plan by which we can render the lives of those children happier and better, more enjoyable in themselves, and more serviceable to the community? I believe an answer to this question is to be found in the adoption and further extension of the “boarding-out” system, or in the adoption of a plan somewhat similar to the present Industrial School system. However seriously one may have considered this question, and however decided opinions one may have formed, it is obvious that a comparison of the two systems cannot be entered upon here. I would merely submit, that to my mind, the ad-

vantages to be derived from a residence in a school, where the children would receive a good education, where they would be properly fed and well housed, where they would be thoroughly disciplined, both morally and physically, where they *would be taught a trade*, and lastly, where they would be taught the value of Christian principles, are incomparably greater than those to be derived from a protracted residence in the houses of the great majority of that class who are in a position to necessitate the reception of, or are willing to receive, pauper children as boarders.

Whatever system is adopted, the great indication should be to withdraw the children altogether from the poorhouse and its influences.

Here opens to our view the large and important question of dealing with those children whose parents have proved themselves to be either physically or morally incapable of rearing them in a right and proper manner. From what I saw during my residence at Barnhill, I became strongly convinced that in many cases the parental tie should be severed, and the children removed entirely from the guidance or rather mis-guidance, of their natural protectors. In poorhouse communities there are to be found parents, aye, mothers, too, sunk so low in the social scale, that that love of offspring, which is an inherent quality of all creation, finds no longer a place in their hearts—parents in whom there is no spark of love—no bond of affection for those who are “bone of their bone, flesh of their flesh.” In such cases, would it not be a charity, if not to relieve such cruel parents of a heavy burden, at least to rescue the innocent and luckless child from those whose moral depravity or physical incapacity renders them unfitted for fulfilling those duties devolving as fathers and mothers upon them. The solution of this question—a question the vastness and importance of which can hardly be over-rated, forms a grand field for exercising the intellect of our social economists. It is a question rather for the social scientist, than for the physician.

The remedies to be employed in the case of our deserv-

ing adult poor, while inmates of the poorhouse, have already been incidentally mentioned. The first reform should consist in a rigid and judicious classification. In dealing with paupers who have sought in-door relief, it is absolutely necessary that those who are fairly entitled to be called *deserving* poor should be distinguished from and dealt with separately from those who are known to be of the *undeserving* class. From what has already been said, it will not be necessary to repeat why this should be so. A spirit of fairness demands it as a recognition of honest worth, for it cannot be for a moment denied that not unfrequently circumstances come about whereby people of sterling worth find it necessary to seek an asylum, either temporary or permanent, in the poorhouse. Apart from the justice of adopting such a distinction as the one I have indicated, the plan would be otherwise an advantageous one. The undeserving class would then have some incentive to endeavour by better behaviour to get rid of the obloquy attached to them, for there should be no obstacles placed in the way of those who, though of the undeserving class, are desirous of crossing the bridge which separates them from their deserving brethren. The greater the bridge between the two classes, so long as the object is not unattainable, the greater would be the incentive. The deserving poor should then be lodged and considered as a class apart from the undeserving class. They should have a certain amount of liberty, they should have a health-giving diet, they should be distinguished by a separate dress, with good-conduct badges if necessary, and they should be employed in the domestic work of the house, in nursing children, or in sewing or knitting. The deserving males could act as porters or messengers about the house, or could assist the various tradesmen attached to the institution. The dirty, heavy work, such as scrubbing, washing, digging, &c., should be reserved for the undeserving class. This class, so long as they remain healthy, should be hard wrought and closely confined. If there is not sufficient work about the poorhouse for their employment, they should be compelled to pick

oakum, break stones, or such other work as is allotted to our criminals.

A pertinent question is, "How are we to know whether an applicant for admission to the poorhouse is a 'deserving' or an 'undeserving' person?" The past conduct of every applicant for relief should determine, as a general rule, to which class he or she must conform. If the applicant's own statement cannot be relied upon, and if the out-door inspector, who has visited the applicant at his or her own house, is unable to form an opinion, I would suggest that a certificate, signed by a member of a parochial board, or by two rate-payers, should be accepted as a guarantee that the applicant's case was a deserving one. I apprehend that there would be no great difficulty in connection with this matter, for it is wonderful how very soon one is able, in a poorhouse population, to select the good from the bad. Again, it may be urged that if this plan were adopted, our deserving poor in the ordinary wards would find their quarters so comfortable that they would be in no great hurry to leave them, and that it would, if adopted, tend to foster a spirit of improvidence amongst the outside poorer classes, who would know that if the worst came to the worst, they will always find a comfortable lodging in the poorhouse. To this double objection I answer (1), that the deserving poor only accept parochial relief when absolutely necessary—to them the epithet "pauper" is most distasteful, and that they are, as a rule, very glad indeed when circumstances enable them to leave the poorhouse; (2) that improvidence should be a quality which debars the applicant's case from being considered a deserving one. Every applicant's case should be rigidly enquired into by the executive department, and if there is ground for believing that such an application has been necessitated by reason of improvidence, vice, or other misdemeanour, let the application, if necessary, be granted; but, by all means, let the applicant be adjudged as "undeserving," and dealt with accordingly.

This plan may appear, at first sight, to some of my readers to foster pauperism, but I am sanguine enough to



believe, that if adopted, it would, instead of fostering pauperism, tend to diminish it. The deserving poor would be properly cared for, and there would not, I think, be, in consequence, any direct increase of this number from the outside population. On the other hand, the undeserving class would have such "hard times" that, as a class, they would slowly, but surely, disappear. The deserving poor should be encouraged to leave the poorhouse as soon as possible, and employment should be found for them. Many of these people are willing to work, but have not the tact nor the intelligence to find it. Whenever it became known to the rate-payers and the outside public generally, that the poorhouse contained many persons, male and female, of undoubted respectability, application would be made for servants, housekeepers, gatemens, porters, and such like. Were this to happen, the poorhouse would supply, in itself, a want which is now much felt in Glasgow. These applications are not made at present, because the general impression amongst the outside public is, that all paupers are alike bad, and there can be no doubt that the present system of administration has tended to originate and foster this very erroneous and unfair opinion.

In conclusion, I would remark, that if pauperism is to be reduced, the proper material for the accomplishment of such an object is to be found in the children. We cannot hope to eradicate pauperism, for it is a Scriptural truth—"The poor have ye always with you." In the near prospect of an amended Poor Law Bill being again brought before Parliament, it is worthy of the most serious consideration of all parties interested in the great subject of pauperism, that especially the welfare of the children should receive grave attention. To my mind it seems a mistake to endeavour to reduce pauperism by dealing with existing paupers. They have already partaken of their country's bounty, and will, with few exceptions, continue to do so, and their more fortunate brethren must be content to realize that it is so, and support them cheerfully.

Let the old stock die as they have lived—paupers—but,

by all means, take their offspring by the hand, and let us endeavour to guide them, educate them, and watch over them, and provide them with those qualifications which shall enable them, by God's blessing, to live a life of usefulness, and leave the world better and richer than they found it.

I am fully conscious that this scheme, which I have been able merely to sketch, as an improved method of dealing with pauper children and deserving poor, may be open to objections of which I am not cognisant. At the same time, what has been written may help to show, to all interested in the subject, how gravely defective is the present system of in-door relief, and how urgent is the need for reform. I think one is not too sanguine in saying, that by adopting some such plan as the one proposed, many tender lives would be saved, much future misery and ill-health prevented, juvenile crime would be of less frequent occurrence, and, in the end, pauperism would be greatly reduced.

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## Exchange Journals.

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VIRCHOW'S ARCHIV.

VOL. LXVI., PART III. MARCH, 1876.

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by Dr P. Bruns, Tübingen. XXVI. Experiments on the action of sulphate of atropine, by Dr A. Zeller, Heidelberg. XXVII. Smaller communications. 1. The endemic and epidemic of trichina in Moscow, by Dr Knoch, St Petersburg. 2. A new method of employing photography for preparing woodcuts, by Dr C. Stüremburg, Munich. 3. Fœtal state of the lungs in new-born children, who have lived and cried after birth, by Dr Fr. Erman, Hamburg. XXVIII. Extracts and reviews. 1. Annual report on the administration of medical affairs in the hospitals and sanitary matters of the city of Frankfort, by Dr W. Stricker. 2. On the causes of the mortality among children, especially in the canton of Zurich, by Dr W. Stricker.

**XIX. Biliary Calculi in the Urinary Bladder** (*Güterbock*).—This is a case in which the patient complained of symptoms referable to the urinary bladder, and on examination, large calculi were found in it. These were readily crushed, and on being expelled they were found to be of the constitution of biliary calculi, consisting chiefly of cholestearine, with some biliary pigment; they were covered with a coating of uric acid. These calculi, the largest of which was as big as a walnut, must have come from the biliary passages, and must have been some time in the urinary bladder, as evidenced by the coating of uric acid. The mode in which they found their way into the bladder is not clear, and as the patient is still alive and well, no anatomical investigation has been made.

**XX. The relation of Phosphorus to Nitrogen in the Urine** (*Zuelzer*).—The results deduced from this series of investigations are summed up in the three propositions:—(1.) The relation between phosphoric acid and nitrogen in the urine is, under normal circumstances, constant, but changes under various influences. 2. The variations in this relation correspond to the periods of increased and decreased activity in the nutritive processes in the nervous system. 3. The general nutrition (of the animal body) is dependent on nervous action.

**XXI. Treatment of Phagedenic Ulcers** (*Weisflog*).—The pain of syphilitic ulcers which have become phagedenic is often of a fearfully intense character. The author has successfully combated this by the use of a Faradising bath. He places one electrode of an induction apparatus at the bottom of a vessel containing water, and the other touching

the immersed limb on which the ulcer is situated. If it is on the hand, then the electrode will touch the fingers, and so on. He treats the ulcer itself by the application of red oxide of mercury in an ointment in the proportion of 1 to 50 or 60.

**XXIII. The existence of Fungi in the Lungs** (*Fürbringer*.)—This author comes to the conclusion that proper fungi are to be found in the tissue of the lungs only in diseased conditions, and that their presence is always secondary to the morbid process. They are found especially in cases where the lung tissue is infiltrated with blood and necrotic, and hence very frequently in the hæmorrhagic infarction. Stagnating blood, and the products of its decomposition, afford a favourable soil for the propagation of fungus spores. But these are not so apt to develop in acute lung diseases, where there is not great weakness of the organism. They are more likely to be found in chronic diseases of the lungs and other organs, especially when combined with great interference with nutrition and the occurrence of cachexia. On the other hand, proper putrid decomposition in the lungs is not associated with the presence of proper fungi, but rather with the occurrence of the schizomyceta, especially bacteria. In necrotic lung tissue without a putrid odour sarcinae have been observed. The presence of fungi in the lung tissue is not to be concluded from the existence of spores in the sputum, but there must be distinct appearances of the spouting of these spores in the freshly evacuated sputum. The presence of spores alone is very frequent, and is of no special significance.

**XXIV. Tumour of the Atlas and Epistropheus** (*Runge*.)—The clinical history of this case is interesting. It began with symptoms pointing to disease of the upper cervical vertebræ, leading to compression of the cord and myelitis. After a time paralysis of respiration supervened, of which the patient died. As the patient was advanced in pregnancy, Cæsarian section was performed at once, and a living child, of about the beginning of the 7th month, was delivered, and lived 48 hours. There was found a tumour involving and apparently commencing in the atlas and epistropheus. The vertebral canal was narrowed, and the cord compressed. The microscopic structure of the tumour is described in a note supplied by Recklinghausen. There is a stroma, in the meshes of which lie cells like in glandular vesicles. The cells are not much larger than white blood corpuscles, and have a large nucleus. The tumour is stated to be a carcinoma from this structure.

**XXV. State of the parts with Esmarch's Apparatus** (*Bruns*).—There are here a set of experiments, with a view to determining to what extent a limb is, or may be emptied of blood, by the application of Esmarch's elastic bandage. It seems that the limb is by no means completely emptied of blood, even when the bandage is very tightly applied. It is possible, however, to squeeze out 70 per cent. of the entire blood contained in the lower leg and foot, while 30 per cent. remains behind. It seems also that the blood in the limbs bears a considerably smaller proportion to the weight of the limbs, than the entire blood in the organism bears to the weight of the body. The author intends to enter on the consideration of the practical results of his researches in another place. The results were obtained by the careful examination and estimation of the conditions presented in five cases of amputation of the leg.

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VOL. LXVI. PART IV. April, 1876.

CONTENTS.—XXIX. On traumatic keratitis, by Dr E. Fuchs, Vienna (Plates XVII.-XVIII.). XXX. Anatomical notices, by Dr W. Gruber (Plate XIX.). XXXI. The pathology of the cauliflower excrescence, by Dr H. Beigel, Vienna (Plates XX.-XXI.). XXXII. On the thermic action of experimental interference with the nervous system, and its relation to the vaso-motor nerves, by A. Eulenberg and L. Landois, Greifswald (Plate XXII., fig. 1.) 1. The thermic action of peripheral irritation and division of the nerve stems. XXXIII. On calorimetry: Public letter to Professor Liebermeister, by Dr W. Winternitz, Vienna. XXXIV. Smaller communications. 1. On macrobiotics, by Dr B. Ornstein, Athens. 2. A medical poet, by Dr W. Stricker. 3. A case of inverted type in typhus fever, by Dr J. Jacobs, Lochem (Plate XXII., fig. 2-3.) 4. The terminology of putrid infection, by Dr Levié, Rotterdam. Reply by Rud. Virchow. 5. International Medical Congress at Philadelphia. XXXV. Extracts and reviews, Graf Utterodt Ludwig. The history of therapeutics, &c.

**XXIX. Traumatic Keratitis** (*Fuchs*).—This author agrees in his views with those who consider that in inflammation of the cornea, the proper cornea corpuscles take an active part, and are not simply passive as others assert. He recognises, as all recent observers do, that there is a considerable emigration of white blood corpuscles into the inflamed cornea from without, but the cornea corpuscles are also concerned, and we have now

briefly to indicate the process as summed up by the author at the end of his paper. When the point of a red-hot needle is applied to the cornea, the cells in the area involved die, and their death is indicated by the formation of vacuoles in them; this is the vacuole zone. Around this zone the cornea corpuscles react to the irritation by enlargement and proliferation, so that around the vacuole zone there is a zone of irritation, in which also there accumulate the white blood corpuscles which emigrate into the cornea. During this process, there by-and-by collect around the zone of irritation, a pretty thick ring of cornea corpuscles, and it is these apparently which have finally to do with the recovery or regeneration of the affected part. For it appears that all the new cells which have come into the zone of irritation, are afterwards got rid of, emigrating out to the surface of the cornea. But in the zone around that, the accumulated cornea cells already mentioned, after the lapse of some time, show signs of activity, and by proliferation become converted into a pretty thick zone of cells, by whose agency the slough of tissue is separated. This slough includes not only the vacuole zone, but also the zone of irritation. It seems, therefore, as if the primary inflammation were followed by a process, which certainly looks like an inflammatory one, involving the proper cells of the cornea, by means of which the final recovery of the structure is effected.

**XXXI. The Cauliflower Excrescence of the Uterus** (*Beigel*).—The true cauliflower excrescence is an epithelial cancer, but there are tumours which have a fallacious resemblance to this form of growth, and yet are different. A case is here reported in which a true cauliflower excrescence reached the size of the fist. The author finds in this tumour giant-cells in considerable abundance, and he looks on them as enlarged and altered epithelial cells. The paper also contains a discussion of the literature of the cauliflower excrescence and also of giant-cells.

**XXXII. Influence of the Nervous System on Temperature** (*Eulenberg and Landois*).—In this first paper the authors do not attempt to give any general conclusions, but the experiments themselves are suggestive, and the results not very different from what one might look for. In the first place, the sympathetic in the neck of the rabbit was experimented on. It was found that electric irritation of this nerve produced immediate reduction in temperature in the part supplied—namely, the ear of the animal. This reduced temperature continued some time after the cessa-

tion of the irritation, and then gave place to rise of temperature, which reached a higher degree than that at the outset. Division of the sympathetic, on the other hand, produced, as might be expected, a constant and rapid rise of temperature, preceded by a slight and evanescent reduction. Irritation of the cut peripheral end produced the same reduction in temperature as irritation of the nerve in its continuity. Similar results were attained in the case of the sciatic. Division of this nerve produced a slow but steady rise in the corresponding foot, while strong irritation of the peripheral end induced, after a short period of latency, a continually increasing reduction of temperature. The cooling only reaches its maximum some time after the irritation has ceased, and it is followed by a slow rise of the temperature. If during this rise the nerve is again irritated, the temperature again falls, but the fall is preceded by a longer period of latency than on the first occasion, and the reduction of temperature is not so great.

**XXXIV. 1. Long Life with Excessive Drinking** (*Ornstein*).—This paper contains a nut for the tectotalers to crack. A man died recently in a village near Smyrna, at the advanced age of 132. A correspondent from the said village to one of the newspapers, reports that the man had led a somewhat irregular life, and was in the habit of taking on an average 100 drams of brandy in the day (amounting to 10½ ounces). Yet he continued in the possession of his five senses and his teeth to the last. He wrought as a baker, and was a merry fellow, fond of dancing and singing.

**XXXIV. 2. A Medical Poet.**—Here is a doctor in active practice who, having held the fiftieth anniversary of his doctorate in 1874, now publishes a translation of the "Odyssey," composed from time to time during his active work.

**XXXIV. 3. Inverted Relation of Morning and Evening Temperature in Typhus** (*Jacobs*).—This is a case in which, contrary to the general rule, the morning temperature exceeded the evening all through the attack.

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VOL. LXVII. PART I. MAY, 1876.

CONTENTS.—I. On the affection called by Hammond athetosis, by Dr M. Bernhardt, Berlin. II. On the primary

occurrence of bacteria in a closed human ovum, by Dr Haussmann, Berlin. III. On the significance of the medullary sheath of the nerve fibres, by Dr R. Arndt, Greifswald. IV. A complicated malformation of the heart, by Professor R. Maier, Freiburg (Plate I., figs. *a b*). V. On tumours having the structure of the decidua, by the same (Plate I., figs. 1, 5). VI. Syndesmology of the larynx, with some remarks on the diagnosis and treatment of paralysis of the dilators of the glottis, by Dr M. Bresgen, Vienna (Plate II.). VII. On the reaction of hyaline cartilage in inflammation, and the cicatrization of wounds in cartilage, with remarks on the histology of cartilage, by Dr A. Genzmer, Halle (Plate III.). VIII. On the mode in which the susceptibility for smallpox and other infective diseases is annulled, by Dr Schönfeldt, Dorpat. IX. Experimental investigations on the physiology of the secretion of milk, by Dr A. Roehrig, Kreuznach (from the Physiological Institute in Freiburg). X. Smaller communications. 1. Notice on lepra anæsthetica in Japan, by Dr A. Wernich, Yedo. Addendum by the editor. 2. Answer to the article of Dr Jacobs, on "The Treatment of Diabetes Mellitus by Glycerine," by Dr Külz, Marburg.

**I. A Case of Athetosis (Bernhardt).**—This is a well described case, in which, as in those hitherto recorded, the chief symptom was a restless play of the fingers and hand, and to a less extent of the toes, with perfect rest of all other parts. The author seeks to draw an analogy between this disease and chorea, especially hemichorea; and as confirmatory of this view, he mentions that in the same family there had been already two cases of chorea, one of which died. There is also the resemblance, that some of the cases of athetosis have followed an apoplectiform seizure, and thus showed an analogy with post-paralytic chorea. While there is an analogy with chorea, the symptoms are sufficiently definite to warrant us in calling the disease by a special name.

**II. Bacteria in the Closed Human Ovum (Haussmann).**—This paper has no very special importance, except to remind practitioners of the dangers they may unconsciously expose their patients to. The author found in the amniotic fluid of a four months' fœtus, within an hour and a half of its delivery, abundant bacteria, which it is to be presumed were there during its residence in utero. The bacteria probably got there from the vaginal mucus, which the author has shown to contain bacteria. In operations or



examinations it should be remembered that some of this mucus may be carried in and do much mischief in the uterus.

**III. The Medullary Sheath of Nerves** (*Arndt*).—This is a very interesting essay, which takes a general survey of the significance to be attached to the medullary sheath. In the first place, it is not *necessary* for any of the animal functions. Animals have all the known powers of the nerves, without any of the nerve fibres being provided with a medullary sheath, thus bees, scorpions, &c. Then again, in pathological cases, there may be a very extensive loss of the medullary sheath without loss of function by the nerve. In the newly born, and in children generally, many of the nerves lack the medullary sheath, which are afterwards provided with it, yet these nerves functionate. The increase in size of the brain and cord during the period of growth is chiefly from an increase in thickness of the medullary sheath. And so, *ceteris paribus*, the medullary sheath is thinner in small persons, and those with small nervous systems. It is thinner in boys than in youths, in spare persons than in robust, in women as a rule than in men. The medullary sheath in women is not on an average thicker than in an older boy or half-grown youth. The author thinks that the nerves with a thin medullary sheath, are more readily stimulated, work more rapidly, but are more quickly exhausted. The strength and thickness of the sheath seems proportionate to the amount of work which the nerve fibre is capable of. Compare, for instance, the amount of actual work which is imposed on the nerves of the midge, butterfly, flea, or even the harvest or Hercules beetle on the one hand, with that required by the roe, greyhound, lion, tiger, horse, whale, or elephant.

**IV. Complicated Malformation of the Heart** (*Maior*).—In a child who died five days after birth, the following conditions of the heart were found. The whole left half of the heart was advanced in front of the right, so that the left heart formed the anterior and the right the posterior portion of the heart. The openings of the venæ cavæ were transposed to the left, and the pulmonary artery to the right. The auricular septum was wanting, and the ventricular imperfect. The auriculo ventricular valves were defectively formed on both sides. The anterior half of the heart corresponding with the left half was much reduced in size, and the right heart dilated. Corresponding

to this the aorta was narrowed and the pulmonary artery dilated. The case is illustrated by drawings of the heart.

**V. Tumours of Decidual Tissue** (*Maier*).—In this paper two cases are described, in which the author considers that tumours were composed of tissue of the structure of the decidua. One of them is a case in which delivery was interrupted by a mass which looked at first like a placenta prævia. The mass was first delivered and found to be a tumour. Under the microscope this growth presented considerable resemblance to cancer, having a distinct alveolar arrangement. But in cancer the stroma or network is formed of connective tissue, while the cells in the alveoli are epithelial, whereas in this case the author contends that the cells of the net-work and those in the spaces were both of the same nature. This was especially evident in stained preparations. The author considers that the decidua is developed from the mucous membrane of the uterus, the glands taking no part in this development, but ultimately undergoing atrophy. He has previously described how the loose, finely areolar mucous membrane forms by a great development of the trabeculæ larger spaces. These trabeculæ enlarge by nucleation and cellulation till they are ultimately composed of decidua cells. In the present tumour there is an exaggeration of this condition, and a whole bulky tumour ( $3\frac{1}{2}$  by 3 inches) is formed of decidual tissue. The formation of decidual tissue in pregnancy has been obviously the starting point of the tumour. In the second case there was no pregnancy, but the woman was married. It may be that here the tumour originated from an irritative decidua, such as that seen in membranous dysmenorrhœa. Tumours of this kind may be circumscribed prominent growths, or broad sessile formations.

**VI. Abnormal Ligaments in Larynx** (*Bresgen*).—The author reports two cases in which there were bands passing from one part of the larynx to another. He supposes that such may occasionally cause fixation of the cartilages having the appearance of paralysis of the muscles.

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# Glasgow Pathological and Clinical Society.

SESSION, 1875-76.

SEVENTH MEETING, March 14, 1876.

*Dr Joseph Coats* showed a specimen of RUPTURE OF THE KIDNEY and one of RUPTURE OF THE SPLEEN. Both the patients from which these specimens were obtained died from the effects of a fall from a high window, and both cases were peculiar in respect that there was no appearance of injury externally corresponding to the internal lesion. He also referred to the conditions found in a recent case of injury to the head from a fall. In it both kidneys were in an intense state of hyperæmia, the entire vessels being distended with blood. During the few hours of life after the injury had been sustained, there was a very excessive secretion of watery urine. The injuries to the brain included laceration and hæmorrhage of the surface and hæmorrhage into the pons varolii.

*Dr Joseph Coats* also showed a specimen of SYPHILITIC TUMOUR removed from the leg. It had formed a senile growth of the shape of a flattened sphere, and about an inch and half in diameter. The tissue had an opaque yellow colour on section, and consisted of indefinite fibres, with fatty and pigmentary degeneration.

*Dr David Foulis* showed a COLLOID CANCER OF MAMMA about the size of a hazel nut, of a clear, yellow, gelatinous appearance, quite circumscribed by a double layer of connective tissue. Sections of the tumour were exhibited.

*Dr Foulis* also showed a LIVER, with numerous dark, red, soft masses, varying in size from a pin point up to that of a pea. The case was during life very obscure. The weight of liver at autopsy was 2 lb 2 oz.; the tissue was flabby and of normal tint. The microscope showed in the red nodules red and white blood corpuscles amid a tissue similar to that of lymphatic glands. At one place a small arteriole was traced into and across a red nodule, and it was plainly seen to be enveloped in the lymphatic tissue referred to. There were tubercular ulcers in the stomach and upper part of small intestine. The duodenum was enclosed in a mass of gelatinous tissue, in which were set the enlarged and cheesy mesenteric glands. These glands at one place pressed on the gall duct and on the portal vein. The conclusion come to was that there had been an infection of the liver probably from the enlarged mass of glands; and that the lymphoid structures were seated in the perivascular sheaths. Possibly the term "miliary lymphoma" would best express the nature of the hepatic deposit.

*Dr Joseph Coats* remarked that this case seemed to him to be probably one of lympho-sarcoma, in which the growth had penetrated into the hepatic

artery or portal vein, the situation of the large tumour suggesting this. The multiple growth in the liver would thus be accounted for. It reminded him of a case he had once seen where the splenic artery, passing through a mass of cheesy glands, had been opened into, and there were numerous cheesy tumours in the spleen. The existence of soft tumours in the peritoneum around the glandular mass seemed to indicate that this mass was more malignant than an ordinary scrofulous aggregation, and was in favour of its being lympho-sarcoma. Dr Coats expressed his preference for the name lympho-sarcoma over lymph adenoma, chiefly on the ground that these tumours present analogies to the sarcomata in their mode of growth.

*Dr Cameron* showed lead pellets and pieces of paper (which had been used as wadding) found within the cranium of a young man who had committed suicide by pistol shot. He had placed a pistol in contact with the skin below the chin and exploded it, and was admitted into the Infirmary immediately afterwards. There was a very large and ragged wound of the neck, through which hung the tongue, so lacerated as to be hardly recognisable. The parts were burnt and blackened. Great damage was done to the soft parts generally in the mouth. On the day after admission his right orbit was found swollen, the eyelids being nearly closed. Discolouration indicated that this was due to extravasation of blood in the loose tissue of the orbit, and there was also subconjunctival ecchymosis. From this *Dr C.* concluded that the charge had fractured the back of orbit, in its passage upwards. The eye was uninjured and the sight good. The patient remained perfectly intelligent up to his death. He answered questions readily by writing, and made all his wants known by the same means. In view of the condition of parts found *post mortem*, these facts appeared to *Dr C.* of great interest.

*Dr Foulis* gave the following report of the *post mortem* appearances:—  
“The parts under the chin are torn and sloughing; the remains of the tongue hanging in the wound. The track of the shot passes directly upwards and perforates the base of skull, close on the right of the *christa galli*. The right eyeball is firm, and the sclerotic is not torn. The track penetrates the right frontal lobe at the seat of the right olfactory bulb. Up to this point the charge had kept in a body, but on reaching the arch of the skull it was deflected and scattered over the surface of the pia mater, and arachnoid of the anterior half of right hemisphere. The dura mater at the place of deflection is not torn, nor is the bone here injured. The dura mater and the pia mater sarachnoid arc, however, coated with a firm yellow-grey layer of lymph over the area where the scattered pellets lie. In the sloughing but roughly circumscribed hole in the ante-right frontal lobe is found the two bits of paper wadding and a few shot pellets. The eyeball must have rotated as the shot passed it, in order to escape laceration so completely. There is a little ecchymosis of the eyelids and round the eye, and a trace of subconjunctival effusion.”

*Dr Reid* presented the patients shown at the last meeting, on whom he had operated for SYMPATHETIC OPTHALMIA, and also the enucleated eyeball

The patient, a boy, was admitted into the eye infirmary in December, with a wound across the corneo-sclerotic junction for about half-an-inch at the upper and outer aspect of left eyeball, involving about equal extent of cornea and sclerotic. The pupil was occupied by lymph exudation, projecting into anterior chamber, and communicating with the wound of the cornea. The injury was caused by an explosion of dynamite. There was no evidence of any foreign body within the eye, and pain and inflammation of the ball being slight, patient was put to bed, and put under mild alterative treatment. The inflammation gradually subsided, and the lymph became in great measure absorbed. On the 2nd of February a relapse occurred. The eyeball became injected in the ciliary region, slight pain was felt on pressure, and this was followed by symptoms of sympathetic irritation in the other eye. On dilating the pupil of the sympathetically affected eye, a small band of adhesion to the lens was observed at the lower and outer margin. Vision was normal. Enucleation was decided on, but some days elapsed on account of delay in obtaining parents' consent, and the left eye was removed on the 9th, under chloroform. On 11th, pupil, which had hitherto yielded readily to atropine, did not respond, and was with difficulty kept in a medium state of dilatation. At the ciliary attachment of iris, opposite the adhesion, was observed a dark streak, indicating engagement, about three lines in extent. There was no pain, and vision remained good. After the operation, cal. and opium were administered at night and pot. iod. during the day. The symptoms improved, the pupil dilating freely. When now presented to the society, the ophthalmoscope examination of fundus shows evidence of atrophy of the epithelial layer of choroid, with slight capillary injection of margin of the disc, evidently from retinal veins. The eye has become hypermetropic, from the presence of hypertrophy of the choroid. On examining the enucleated eye, hardened in chromic acid, and making an ant-post section, the band of lymph extending from the pupil to the cornea was found to communicate with the zonule of zinn, there being no trace of the lens. The ciliary body was hypertrophied, displacing the ciliary muscle forwards upon the iris. The retina was completely separated from the choroid, assuming a conical form, the apex at the optic nerve entrance and the base at the zonule of zinn, forming there a tolerably solid mass, along with exudation of the iris. No foreign body was detected.

As a contrast to this case, *Dr Reid* showed a patient suffering from a very similar injury to the same part of eye, received about six weeks ago, where, after the lapse of a fortnight, an abscess formed in the ciliary region, and was now discharging pus freely, without any symptom of sympathetic disturbance having at any time appeared.

EIGHTH MEETING, March 28th, 1876.

*Dr Reid* showed a patient with AMAUROSIS, the result of LEAD POISONING. She was admitted into the Eye Infirmary, 2nd February, 1876. Twenty-one months before admission, patient obtained employment in a white lead manu-

factory, Maryhill Road, Glasgow. Here she continued for eight months, when she was compelled to leave off work, on account of severe cramping pains in the region of stomach and colon, with vomiting and violent headache. After the New Year holidays, she resumed work for about two months, but an aggravated attack of the above pains compelled her again to desist. During this illness she lay unconscious for two days, after which the stomach symptoms disappeared, but a violent headache, increased on the slightest movement, kept her in bed for five weeks. Destitute circumstances, however, again forced her to begin work in April last, between which time and the Glasgow Fair, in the first week of July, she was "off and on" work on three different occasions. (Patient speaks of two other companions being similarly affected at this time.) After the "Fair Holidays" she resumed and continued work up till the middle of September last. Then, however, new symptoms supervened. Having lain a week in bed, she noticed that her hands and wrists had lost their power; that her hands drooped; and that she had little or no control over them. Further, that one day at one o'clock afternoon, she mentioned to those beside her that all around her became dark and hazy, and that by four o'clock that same afternoon she was in total darkness, which has never left her. She was afterwards removed to the City Poor's House, where she remained for a month, during which time she had fly blisters applied to the nape of the neck without any marked effect. She was then taken to Barnhill Poor's House, where she was kept for three months. Patient states that while here all the above symptoms disappeared except that of blindness. She now speaks of sudden flashes of light shooting about in all directions in both eyes. This light is equally bright when the eyes are closed, and may be momentary or remain for some little time. The continuous electric current has no effect in stimulating the retina to see flashes of light. Recently, however, the fundus of the eye has assumed a more natural appearance than formerly; it has become more vascular, and patient thinks she can see a little. On ophthalmoscopic examination there is found to be atrophy of both optic nerves. The vessels, both arteries and veins, are decreased in number and calibre; there is no exudation.











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